EEI BULLETIN

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• DECEMBER 1960 •

Views on Taxes in the Electric Industry

Report on Street Lighting Conference

A 'Gold Mine in the Sky'

Sherman R. Knapp

Businessmen Must Lead the Way

J. W. McAfee

PUBLISHED BY EDISON ELECTRIC INSTITUTE

ELECTRIC UTILITY INDUSTRY Statistics IN THE UNITED STATES

for AUGUST 1960

Current Statistical Data Covering 100 Percent of Industry

(Includes Investor-Owned Companies, Cooperatives, and Government-Owned Utilities) — August 1960

	1960	1959	%
SOURCE AND DISPOSAL OF ENERGY			
NET GENERATION* (Kwhr in Thousands)			
By Fuel Burning Plants	55,137,939	52,126,567	+ 5.8
By Water Power Plants	12,117,080	10,957,358	+ 10.6
Total Generation	**67,255,019**	**63,083,925**	**+ 6.6**
Add—Net Imports over International Boundaries	544,945	220,688	+146.9
Less—Company Use	180,898	174,344	+ 3.8
Less—Energy Used by Producer	2,329,699	2,223,788	+ 4.8
Net Energy for Distribution	**65,289,367**	**60,906,481**	**+ 7.2**
Lost and Unaccounted for	7,775,965	7,248,220	+ 7.3
Sales to Utimate Customers	**57,513,402**	**53,658,261**	**+ 7.2**
CLASSIFICATION OF SALES			
NUMBER OF CUSTOMERS—As of August 31, 1960			
Residential or Domestic	49,618,176	48,470,176	+ 2.4
Rural (Distinct Rural Rates)	1,573,472	1,673,155	— 6.0
Commercial or Industrial:			
Small Light and Power	6,421,059	6,351,622**	+ 1.1
Large Light and Power	350,165	349,830**	+ 0.1
Other Customers	200,468	193,136	+ 3.8
Total Ultimate Customers	**58,163,340**	**57,037,919**	**+ 2.0**
KILOWATT-HOUR SALES—DURING Month of August (Kwhr in Thousands)			
Residential or Domestic	15,389,642	14,189,655	+ 8.5
Rural (Distinct Rural Rates)	1,533,754	1,498,573	+ 2.3
Commercial or Industrial:			
Small Light and Power	10,769,099	10,132,497**	+ 6.3
Large Light and Power	27,558,194	25,775,449**	+ 6.9
Street and Highway Lighting	477,531	446,355	+ 7.0
Other Public Authorities	1,353,998	1,192,569	+ 13.5
Railroads and Railways	363,952	363,472	+ 0.1
Interdepartmental	67,232	59,691	+ 12.6
Total to Ultimate Customers	**57,513,402**	**53,658,261**	**+ 7.2**
Revenue from Ultimate Customers (Thousands)	**$967,782**	**$906,896**	**+ 6.7**
RESIDENTIAL OR DOMESTIC SERVICE			
AVERAGE CUSTOMER DATA—for 12 months ended August 31, 1960			
Kilowatt-hours per Customer	3,741	3,490	+ 7.2
Average Annual Bill	$92.78	$87.95	+ 5.5
Revenue per Kilowatt-hour	2.48¢	2.52¢	— 1.6

* By courtesy of the Federal Power Commission.
** Revised for comparison purposes.

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December, 1960

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The objectives of the Edison Electric Institute are:

The advancement in the public service of the art of producing, transmitting, and distributing electricity and the promotion of scientific research in such field.

The ascertainment and making available to the members and the public of factual information, data, and statistics relating to the electric industry.

To aid its operating company members to generate and sell electric energy at the lowest possible price commensurate with safe and adequate service, giving due regard to the interests of consumer, investor, and employee.

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CONVENTIONS and MEETINGS

1961

January

11 EEI Home Service Committee, Chicago, Ill.

12-14 LBE Women's Conference, Edgewater Beach Hotel, Chicago, Ill.

16-17 EEI Residential Wiring Promotion Committee, Shoreham Hotel, Washington, D. C.

19-20 EEI Industrial Relations Committee, Chase Park Plaza Hotel, St. Louis, Mo.

19-20 EEI Transmission - Distribution Committee, Warwick Hotel, Philadelphia, Pa.

23-24 EEI Electric Space Heating and Air Conditioning Committee, New Orleans, La.

23-26 Canadian Electrical Association, Eastern Zone Meetings, All Sections, Halifax, Canada

25-26 Southeastern Electric Exchange Legal and Claims Committee, Miami Beach, Fla.

29-Feb. 3 AIEE Winter General Meeting, New York, N. Y.

February

1- 2 EEI Commercial Cooking and Water Heating Committee, Atlanta, Ga.

2- 3 EEI-AGA Accounting Conference Final Working Meeting, The Brown Hotel, Louisville, Ky.

2- 3 PEA Prime Movers Committee, Pittsburgh Hilton Hotel, Pittsburgh, Pa.

6- 8 EEI Prime Movers Committee, Dinkler-Tutwiler Hotel, Birmingham, Ala.

8- 9 PEA Transmission and Distribution and Systems Operation Committees—Joint Meeting, Penn Harris Hotel, Harrisburg, Pa.

8-10 EEI-AGA Taxation Accounting Committees, Deshler Hilton, Columbus, Ohio

13-14 EEI Electrical System and Equipment Committee, Chase Park Plaza Hotel, St. Louis, Mo.

13-16 American Society of Heating, Refrigerating & Air Conditioning Engineers Semi-Annual Meeting, Conrad Hilton Hotel, Chicago, Ill.

16-17 Missouri Valley Electric Association Industrial & Commercial Sales Conference, President Hotel, Kansas City, Mo.

March

5- 9 ASME Gas Turbine Power Division Conference, Shoreham Hotel, Washington, D. C.

16-17 EEI Industrial Relations Committee, Mayflower Hotel, Washington, D. C.

19-22 EEI Meter and Service Committee, Netherland Hilton Hotel, Cincinnati, Ohio

27-29 Southeastern Electric Exchange Annual Conference, Boca Raton Hotel & Club, Boca Raton, Fla.

April

6- 7 PCEA Engineering and Operating Section, Ambassador Hotel, Los Angeles, Calif.

9-13 ASME Oil and Gas Power Conference and Exhibit, Jung Hotel, New Orleans, La.

12-14 Missouri Valley Electric Association Engineering Conference, President Hotel and Municipal Auditorium, Kansas City, Mo.

17-18 PCEA Business Development Section, Sheraton-Palace Hotel, San Francisco, Calif.

17-19 EEI-AGA National Conference of Electric and Gas Utility Accountants, The Chase Park Plaza Hotel, St. Louis, Mo.

20-21 EEI Industrial Relations Committee, Roosevelt Hotel, New Orleans, La.

23-26 EEI Accident Prevention Committee, Edgewater Beach Hotel, Chicago, Ill.

26-27 Indiana Electric Association, 21st Annual Young Men's Utility Conference, Severin Hotel, Indianapolis, Ind.

26-28 NELPA Engineering & Operation Section Joint Meeting with Personnel and Safety Section, Sheraton-Portland Hotel, Portland, Ore.

27-28 PCEA Administrative Services Section, Villa Hotel, San Mateo, Calif.

May

15-17 EEI Purchasing & Stores Annual Meeting, The Shamrock Hilton, Houston, Texas

17-19 PCEA Annual Convention, Sheraton Palace Hotel, San Francisco, Calif.

24-26 NELA Accounting and Business Practice Section, Medford Hotel, Medford, Ore.

June

5- 8 EEI Annual Convention, Waldorf Astoria, New York City, N. Y.

11-14 NELPA Business Development Section, Banff Springs Hotel, Banff Springs, Alberta, Canada

12-13 AGA Managing Committee, Homestead, Hot Springs, Ark.

25-30 ASTM Annual Meeting, Chalfonte-Haddon Hall, Atlantic City, N. J.

26-28 American Society of Heating, Refrigerating and Air Conditioning Engineers Annual Meeting, Denver, Colo.

Views on Taxes in the Electric Industry

Editor's Note: In recent addresses around the country, Sherman R. Knapp, EEI President, has discussed tax inequities. In these talks Mr. Knapp referred to a statement made by Northcutt Ely of Ely, McCarty and Duncan, General Counsel for the American Public Power Association, at an APPA meeting last spring. Mr. Knapp's remarks on tax inequities are shown below, followed by Mr. Ely's statement, which is reproduced in its entirety. E. R. Gilpin, Senior Partner of the New York law firm of Reid & Priest, has made an examination of Mr. Ely's address, and this, too, is included.

Mr. Knapp's Statement

WHEN I was elected to the Presidency of the Edison Electric Institute in Atlantic City last June, I tried to make it quite plain that I thought *tax inequities* were the Number One problem of the investor-owned public utilities. I said then that "the greatest threat to our industry continues to be subsidized competition from governmental power undertakings, and the major handicap in meeting this threat is tax inequality. We have no quarrel with the idea that the electric bill is a reasonable and convenient device for collecting taxes to support local, state, and Federal government. We justifiably contend, however, that everyone who pays an electric bill should make a proportionate contribution to the support of government."

I was surprised and heartened by the response to these remarks, because there is certainly nothing new about our industry's unhappiness in the historic discrimination against the shareholder public utilities, and in favor of the government power operations.

When I got back from Atlantic City last June I found two interesting papers on my somewhat overloaded desk. One was a tearsheet from the June issue of *Public Power*.

The tearsheet concerns the resolutions adopted at the convention. It is full of "whereases" and "be it resolveds." In the sixth "whereas," it says, "whereas, the Federal government may not constitutionally tax the income of the states and their political subdivisions . . ." This is quite a statement, as flat as a constitutional amendment—but it is only a statement, as we shall see.

After three more "whereases," the APPA "resolved" to oppose any legislation which would impose Federal income taxation on local government power. This, after they had said it was illegal, unconstitutional, and couldn't be done anyway.

In the same neat pile of papers, I found another document on my desk—a release entitled "Federal Taxation of Public Power." It is a speech made at this same May 5 meeting of the American Public Power Association. The speaker, Mr. Northcutt Ely, of Ely, McCarty and Duncan, Attorneys, Washington, D. C., who is General Counsel for the American Public Power Association, says, and I quote:

"During the present session of Congress, the House Ways and Means Committee has been conducting extensive hearings on the revision of the tax laws. Included in the agenda have been two questions whose resolution may control the future of public power in the United States.

"One is the proposal for Federal taxation of the interest which states and their political subdivisions pay upon their indebtedness. . . . The other is the proposal for Federal taxation of the income which political subdivisions derive from their publicly owned util-

ities . . . Both kinds of income are exempt under present Federal legislation . . .

"The arguments for ending or restricting these exemptions reflect the necessity of the Federal government for more tax revenues . . . and the resulting pressures to find new sources of revenue which will permit reduction of the burdens on present taxpayers. This pressure is particularly strong against revenue sources which are beneficiaries of exemptions."

Then Mr. Ely, who certainly should have reviewed the formal resolutions made the same day at the same place, goes on to say this:

"There is nothing in the Federal Constitution which specifically immunizes the states or their political subdivisions from Federal taxation . . ." (Italics supplied by Mr. Knapp.)

Federal power counselor Ely continues: ". . . those who oppose us say these . . . immunities . . . are ripe for repeal." Well, those are his words and for once, I must agree with him. He says, also, "The results to public power would be catastrophic if the interest upon municipal bonds, or the income of publicly owned utilities should be subjected to Federal income taxation." Later he frankly admits that tax equality confronts public power with "the greatest hazard in its history."

This seems to me a plain confession that when government goes into business, it does not trust its ability to operate on a sound business basis; that government in business must be sheltered from the harsh realities of the taxes and money-costs paid by the investor-owned public utilities.

Four out of five of us who pay electric bills kick in 23 cents in taxes for every dollar on the bill. Why should that fifth customer, who is served by government power, not pay his fair share of the cost of government, of Polaris missiles and nuclear submarines, of schools and highways? But the customer who lives in Los Angeles, or Jacksonville, or Tacoma, or Nashville does not pay this 23 percent tax—all of which constitutes a sizable tax loophole through which slips more than a half billion dollars a year which should be flowing into the perpetually hungry coffers of our local, state and Federal governments.

Why should this fifth customer not pay the same share of taxes collected through the electric bill as the rest of us? I have never heard a reasonable explanation for this plain discrimination in our tax structure. Only the tired old political rituals that government power must be free from taxes, free from the normal public market price of money, if government power is to lead the shareholder public utilities out of the darkness of successful operations! This is really Alice in Wonderville!

Mr. Ely's Statement

DURING the present session of Congress the House Ways and Means Committee has been conducting extensive hearings on the revision of the tax laws. Included in the agenda have been two questions whose resolution may control the future of public power in the United States. One is the proposal for Federal taxation of the interest which states and their political subdivisions pay upon their indebtedness. The tax would be paid by the bondholder but would be reflected in an increased cost of money to the municipal borrower. The other is the proposal for Federal taxation of the income which political subdivisions derive from their publicly owned utilities. The tax would be paid directly by the municipality. Both kinds of income are exempt under present Federal legislation. Whether this immunity is also protected by the Federal Constitution is controversial. By invitation of the committee, I participated in the panel discussions of both topics. So did representatives of the privately owned utilities. Surprisingly, these power company spokesmen and I reached opposite conclusions. I do not suggest that everyone on the other side speaks for a power company. To the contrary, there is widespread and powerful support for the movement to eliminate these statutory exemptions.

The arguments for ending or restricting these exemptions reflect the necessity of the Federal government for more tax revenues, the recognition that present tax rates are too high, and the resulting pressures to find new sources of revenue which will permit reduction of the burdens on present taxpayers. This pressure is particularly strong against revenue sources which are beneficiaries of exemptions.

There is nothing in the Federal Constitution which specifically immunizes the states or their political subdivisions from Federal taxation, but for more than a century the courts have recognized an implied reciprocal immunity of the Federal and state sovereignties from taxation by the other. The last 25 years have seen a succession of cases narrowing the application of this doctrine of implied immunity. Those who oppose us say these remaining immunities are likewise unprotected by the Constitution, produce discriminatory results, and are ripe for repeal.

These are formidable arguments. They are being urged with skill by powerful interests, and they will be considered in the next Congress in connection with wholesale revisions of the tax laws which offer a favorable climate to these plausible proposals. The results to public power would be catastrophic if the interest upon municipal bonds, or the income of publicly owned utilities, should be subjected to Federal

income taxation. Upon this point, at least, the private power companies agree with us, as is evidenced by their massive advertising campaign to accomplish this very result.

Let us consider the impact of these proposals, and the constitutional and policy questions they present.

First, as to bond interest:

Increase in Interest Rates Seen

Reasonable estimates indicate an increase of 30 to 40 percent in current interest rates if the tax exemption of interest on municipal bonds is removed, equivalent to an inflation of the debt burden to about $4 for each $3 of real capital obtained. To provide this added money each year would require either a current increase in local taxes, or an increase in rates, tolls or rents, if the debt is serviced by revenues. If, for some reason, the taxes or revenues servicing the debt cannot be increased, then neither can the debt, no matter how urgently the new schools, water works, sewage plant, or electric service may be needed by an expanding population.

The imposition of a Federal tax on bond interest bears directly on the borrowing power of states and municipalities, either increasing the burdens on state and local governments, in the form of increased local taxes or rates payable for essential public services, or, in the alternative, denying them these services by stifling the power to borrow to finance the capital investments required.

In the language of one Supreme Court case, a tax on interest operates directly "on the power to borrow before it is exercised." The power to borrow, and its twin, the power to tax, are essential to the existence of every sovereign, and cannot be impaired without a corresponding impairment of sovereignty. The constitutional argument, if sound, disposes of the problem. But the disquieting fact is that, beginning in the late 1920's, the Supreme Court has ruled adversely in almost every case of a claimed constitutional immunity from Federal taxation, and there is no reason to believe that this swing of the pendulum has ended.

The immediate problem is what Congress ought to do as a matter of policy, not what it can do as a matter of constitutional power.

There are strong reasons of policy, as well as constitutional arguments, against Federal taxation of municipal bonds. One is the staggering size of the problem.

There are more than 100,000 political subdivisions in the United States. State and local governments, with an outstanding bonded debt of over $57 billion, are issuing bonds at a rate exceeding $7 billion a year, to provide essential public services for an expanding population. Most of the issuing entities are small. So are their bond issues. Without the exemption, many of them would find no market at all for their bonds, for the interest rate they would have to pay would be beyond their resources.

To the extent that local governments can carry their own burdens, it is in the national interest to encourage them to do so. To the extent that their borrowing power is crippled by new Federal taxation, local governments will be prevented from carrying their own burdens, and driven to rely upon Federal assistance. We saw that in PWA days. In consequence, the Federal government may ultimately have to pay for a greater share of essential water, school, sewage, power and highway projects if state and municipal bond interest is subjected to Federal taxation. The Federal treasury, in the long run, would suffer, not gain, from the disabling of local public credit. This is quite aside from the constitutional problems involved in devaluing $57 billion in existing bonds, or the headaches involved in legislation applicable only to future issues.

Lest, however, you be too much comforted by these arguments, reflect upon our opponents' true objective: to single out for taxation, if they can, the public power revenue bond, which, they say, relates to a proprietary function, not an essential governmental function, and which can be replaced by the private power company's securities with no increase in the Federal debt burden. This brings us to an examination of the status of the revenues which support these public bonds, and thus to the consideration of the proposal to tax the income of publicly owned utilities.

Let us look at this problem in perspective.

To Serve the Public

Certain functions are essential to the daily lives of the state's citizens, but are beyond the capacity of the individual citizen to perform by his own efforts. The million families of a city cannot dig a million water wells or a million cesspools. The public, the *res publica*, must build water works, sewage works and other essential utilities for them. As an alternative, the public can try to induce private capital to build, own and operate the necessary works. To persuade private business successfully to perform an essential public function, the state must delegate certain of its own powers to its licensee. Included is the power to require all citizens to be served exclusively by the facilities of the state or its delegate; the power of eminent domain; security of tenure for a period long enough to assure retirement of the debt incurred to build the works; establishment of rates adequate to assure good service and to attract the necessary capital. The delegate receiving the franchise thus exercises the state's governmental powers.

If the people make such a delegation by granting a franchise, they not only have the power to reoccupy the field so licensed out (assuming fair compensation), but when they do reoccupy it by substituting public ownership of essential facilities for ownership by private investors, they are taking nothing away from private enterprise. The function so reoccupied always was a public, not a private, function. Essentiality of the utility's function is the test of its public character. If there is any doubt as to the essential public func-

tion of electric service, compare it to the services of the post office. Decide for yourself whether you would rather go for a week without mail or without electricity.

A public utility—whether we use the term as relating to the works which serve the public or the entity which provides them—is not a private enterprise in the sense found in any other business. Private enterprise means competitive enterprise, offering its product in the market at a price fixed by competition, and is the opposite of a franchised monopoly which is assured an attractive rate of return by the state, and is aided by the state's power of eminent domain. The relation of the state to a power company is the relation between the primary and secondary windings of a transformer. Powers of the state are transferred to the utility company by induction, so to speak. Without the public powers delegated by the state, the utility, whether privately or publicly owned, is as useless as a dead transformer.

But when the state withdraws its license, occupies the field of essential public service itself, shoulders its own responsibilities instead of delegating them, asserts its powers itself instead of offering them as an inducement to private industry, it is not encroaching on free private enterprise. The enterprise never was freely open to all, it never was truly private, because it could not exist at all without the possession of public powers delegated to it, and it never was "enterprise" in the sense that its income was ever subject to the hazards of the market place, outside the umbrella of an assured rate of return on the investment.

The public, when it owns and operates its public utilities, is reoccupying a field that always belonged to it. If it does occupy the field, the revenues realized from this public service are not constitutionally subject to Federal taxation, in my opinion, whether generated in the form of tolls, rates, ad valorem taxes, sales taxes, or by any combination of these. By hypothesis, these utility revenues can be applied only to public functions, and cannot be taxed by another sovereign if doing so would impair those functions.

Let us examine that last statement a little more closely.

States and local governments derive their funds by many means—taxes, sale or lease of natural resources, tolls, rates or other charges for public services. No one has ever seriously suggested that the Federal government could or should tax the tax receipts of a state. The power of decision by the state or its political subdivision whether to finance its public works out of revenues or by local taxes is itself an essential sovereign power incident to the sovereign powers of the purse. The effect of Federal taxation of revenues is primarily to impose on the state a Federal decision as to the redistribution of costs of essential services as between the state's taxpayers and the state's ratepayers.

But those who disagree with us are determined to force the issues of taxation of public power, with respect both to bond interest and to income from publicly owned utilities. These issues will face us in the Congress within the next two years, and subsequently, perhaps, in the courts. Let us not delude ourselves. Public power will soon be confronted by the greatest hazard in its history. This past year's tax hearings were merely a curtain-raiser.

I have read somewhere that the very large prehistoric dinosaur called Brontosaurus had a nervous system that functioned in a curious way. When confronted by an imminent and overwhelming danger, he broke into a frenzy of ponderous activity. As soon as the danger—perhaps a tougher dinosaur, Tyrannosaurus Rex—disappeared behind a rock, the fat Brontosaurus and his brethren immediately resumed their contented browsing, incapable of remembering the terror which was past or of preparing to avoid its recurrence. After a while, Brontosaurus was extinct. He was the biggest fossil in the museum, a great distinction.

I do not identify either the tax gatherer or the private power business as Tyrannosaurus Rex, but I can hear someone sharpening some very big teeth, and I suggest that we be prepared next year when he comes out from behind the rocks, whoever he is.

Mr. Gilpin's Statement

IN a statement last spring before the American Public Power Association by Mr. Northcutt Ely, of which association Mr. Ely is general counsel, Mr. Ely drew attention to suggestions made, during the last session of Congress, before the House Ways and Means Committee, that interest on bonds issued by states and their political subdivisions, and the income of such entities engaged in the public utility business, be subjected to Federal taxation.

The membership of American Public Power Association comprises municipal power authorities, state and county public power districts, irrigation districts and some rural cooperatives, engaged in various phases of the electric power business. The Association has about 1000 members with representatives from 42 states.

Apparently the suggestions to broaden the base of Federal taxation by applying it to all enterprises engaged in the electric power business have been viewed with increasing concern by the members of this large

group. Their concern is understandable. Necessarily it stems from a realization that they enjoy a lucrative special privilege at the expense of all other taxpayers, and what it would mean to have the special privilege withdrawn.

Mr. Ely is really warning his clients that their preference status may be placed in considerable jeopardy. These are the highlights of his statement:

- He admits there is no constitutional immunization, and virtually no remaining court-made law, which accords automatic exemption to interest on bonds and income derived from state-owned public utility operations.
- He states that "the results to public power would be catastrophic if the interest upon municipal bonds, or the income of publicly owned utilities, should be subjected to Federal income taxation."
- He points out that increased cost of borrowing would increase rates or, in the alternative, increase state or local taxes.
- He warns that needed capital for additional governmental expenditures for schools, water works, sewerage plant, or electric service would be jeopardized.
- He suggests that under taxation borrowing power of states and political subdivisions may be so crippled as to throw the burden of essential services upon the Federal government to the detriment of the Federal treasury and, presumably, of all Federal taxpayers.
- He points out that while all the above are "comforting arguments," the objective of those who speak on behalf of equalizing the tax burden is to single out for taxation the "public power revenue bonds" and "the income of publicly owned utilities."
- He groups such functions as water works, sewerage works, school systems and the like with electric power service as "an essential public function" and, proceeding from this premise, urges that the state may delegate its power to perform such functions or, having delegated the function, may if it sees fit "reoccupy it by substituting public ownership of essential facilities for ownership by private investors" and in so doing "they are taking nothing away from private enterprise" and "(the state) is not encroaching on free private enterprise."
- He takes the position that "it (presumably the electric power business) never was 'enterprise' in the sense that its income was ever subject to the hazards of the market place, outside the umbrella of an assured rate of return on investment."
- He concludes that the state should have power "to finance its public works" unhampered by Federal taxation and that in his opinion "revenues realized from this public service (presumably electric power service) are not constitutionally subject to Federal taxation."

Not for Examination

Do these "arguments" and conclusions stand up under searching examination? They do not.

At the outset of his statement Mr. Ely admits that there is no constitutional bar to the taxing of a state-owned and -operated electric power enterprise and that the courts afford no comfort in protecting the statutory exemption now existing, should the Congress see fit to tax such an enterprise. He is quite right, and this is still the law of the land. But for reasons undisclosed and notwithstanding his earlier admission and the obvious state of the law today, Mr. Ely, in his American Public Power statement, nevertheless ultimately concludes that a tax on the state-owned electric power business would be unconstitutional. He does not explain this contradiction in his thinking.

Supreme Court Decisions

It is instructive at this point to refer to a few extracts from decisions of the Supreme Court of the United States, in cases where the Federal taxing power was under consideration, for they serve, in succinct language, to dispose of a number of Mr. Ely's favorite themes asserted in support of tax-free operation of state-operated electric power systems. Mr. Ely, for example, attempts to cloak the special tax-free privilege of such systems by characterizing their activities as "an essential governmental function." The Court has said:

> "It is no part of the essential governmental function of a state to provide means of transportation, supply artificial light, water, and the like."[1]

Mr. Ely also urges that the electric power business is primarily a function of state government to be delegated to private enterprises only where the state considers it expedient to do so. There is, of course, no support in historical fact or otherwise for such a proposition. The vast extent of the investor-owned power business in this country is well-known. And here again the Supreme Court states the ruling principle:

> "Not the extent to which a particular state engages in the activity, but the nature and extent of the activity by whomsoever performed is the relevant consideration."[2]

There can be no question of the right or the power of a state to engage in the public utility business. But, when it does so, its responsibility for its share of the Federal tax burden is equally clear, for the Court has said:

> "When a state embarks in a business which would normally be taxable, the fact that in so doing it is exercising a governmental power does not render the activity immune from Federal taxation."[3]

Further emphasis is accorded where the Court has also said:

> "But so long as Congress generally taps a source of revenues by whomsoever earned and not uniquely capable of being earned only by a state, the Constitution of the United States does not forbid it merely because its incidence falls also on a state."[2]

1Flint vs. Stone Tracy Co., 220 U.S. 107.
2New York vs. United States, 326 U.S. 572.
3Allen vs. Regents of the University System of Georgia, 304 U.S. 439.

This is plain, unambiguous language and certainly no one can question the fact that the investor-owned electric power enterprise is a "normally taxable" business, and certainly no one would suggest that revenues from the electric power business are "uniquely capable of being earned only by a state."

Shield Against Federal Taxation

Mr. Ely in his American Public Power statement and before the Ways and Means Committee of the Congress has said that the sovereignty of the state affords a shield against the Federal taxation of its governmental function of rendering electric power service to its citizens. Mr. Ely seems to have overlooked the statement of the Supreme Court:

> ". . . If a state chooses to go into the business of buying and selling commodities, its right to do so may be conceded so far as the Federal Constitution is concerned; but the exercise of the right is not the performance of a governmental function, and must find its support in some authority apart from the police power. When a state enters the marketplace seeking customers it divests itself of its *quasi* sovereignty *pro tanto*, and takes on the character of a trader, so far, at least, as the taxing power of the Federal government is concerned . . ."[4]

Finally, Mr. Justice Rutledge's reasoning, in a concurring opinion of the Court in upholding a Federal tax on a state enterprise, is singularly apropos where the state arrogates to itself the electric power business and then claims the special privilege of Federal tax immunity:

> ". . . The shift from immunity to taxability has gone too far, and with too much reason to sustain it, as respects both state functionaries and state functions, for backtracking to doctrines founded in philosophies of sovereignty more current and perhaps more realistic in an earlier day. Too much is, or may be, at stake for the nation to permit relieving the states of their duty to support it, financially as otherwise, when they take over increasingly the things men have been accustomed to carry on as private, and therefore taxable, enterprise. Competitive considerations unite with the necessity for securing the Federal revenue, in a time when the Federal burden grows heavier proportionately than that of the states, to forbid that they be free to undermine rather than obligated to sustain the nation's financial requirements."[5]

This clear, cogent, concise statement is the essence of the position of investor-owned electric enterprises in the matter of tax equality.

Significantly, perhaps, the American Public Power statement fails to mention the Federal taxation of the electric power business of Federally owned projects. These tax-free, Federal government enterprises account for more than 70 percent of the total special-privileged power produced in the United States by all Federal and state government-sponsored power operations. Notwithstanding this huge segment of tax-free power there are at least two good and sufficient reasons why Mr. Ely carefully avoided reference to Federal public power in the American Public Power statement. First: the Federal government can at will tax its own projects. In point of fact the laws authorizing imposition of a Federal income tax upon the Federal government's largest public power agency, the Tennessee Valley Authority Corporation, are on the books today, but they are not enforced. Mr. Ely is aware of this, and it has been pointed out to the tax-writing House Committee on Ways and Means—but not by Mr. Ely. Second: Federally generated power carrying no tax-cost factor must first be sold to the equally Federal tax-free state, municipal and electric cooperatives. These organizations, engaged as they are in competition with investor-owned power companies, have first call, they enjoy "preference," under existing law and regulations, in the purchase of Federal tax-free power. Thus is the special privilege of the American Public Power group pyramided, and their mounting concern that it is in jeopardy becomes quite understandable. There *is* growing evidence of disenchantment on the part of the long-suffering taxpayer with this wholly indefensible discrimination inherent in one of America's major industries. This discrimination is in no way different than if the people of the State of Michigan were privileged to purchase automobiles (or food or medical supplies or anything else, for that matter) without a tax-cost factor in the price while the people in the other 49 states paid the going rate for these commodities with the tax-cost factor included in the price.

Subtle Argument

Mr. Ely decries the thought of a tax on the interest of bonds issued by states and municipalities to finance "public works," holding that such tax would substantially increase borrowing costs and endanger the state's capacity to borrow for further expansion. His argument here is subtle. He groups schools, sewerage systems, hospitals and the like with electric power service under the "public works" banner, and its surface appeal is obvious. Whether or not bonds issued to build schools, hospitals, water supply and sewerage systems should be taxed is not germane to a discussion of public versus private power. It is clear, of course, that if Congress saw fit to do so it could tax the interest on bonds issued to finance the power business of state, county and municipal "districts" and "authorities," however designated, even though no similar tax were imposed on other state, county and municipal obligations. It probably is true that such tax would increase the cost of these operations. If so, why not? The investor-owned companies have successfully financed their businesses with fully taxed capital obligations. (And even if such a tax were to spell out

4Ohio vs. Helvering, 292 U.S. 360.
5New York vs. United States, 326 U.S. 572.

dire consequences for the special-privileged power operations, the investor-owned companies certainly would be prepared to lend a helping hand—by whatever means commensurate with good business.) Thus Mr. Ely's concern that a burden would be thrown on the Federal treasury through visualized failure of state electric power operations is scarcely well-founded; in fact, it verges a bit on the crocodile side.

The Association statement carries the naive assertion that the investor-owned company enjoys an "assured" rate of return. Mr. Ely knows better. Regulated—yes, but regulation by no means guarantees anything, much less assurance that the return earned by the regulated utility will equal the allowed rate of return—if one is established. On the other hand, the special-privileged, tax-free public power businesses are subject to little or no regulation.

With equal naivete the statement further suggests that the investor-owned electric company is clothed with a kind of state-delegated quasi sovereignty in that among other things it is not subject to the hazards of the marketplace. Presumably this means freedom from competition. As to this one, Mr. Ely's constituents may readily disabuse their minds of this notion by reading the proferred testimony before the Federal Power Commission in the recent proceedings involving the Electric Companies Advertising Program. The public power competition there described is omnipresent, real, severe, and with no holds barred, but it is *not* in the best American tradition, since it starts from a base of inequality.

The *leit motif* of the American Public Power statement is that: "No! No! You can't tax us—you can't destroy our special privilege." This anguished cry can only mean that if they are taxed, their customers will pay the same costs for their power that everyone else pays. The obvious answer is: if the special-privileged group is to remain special-privileged, there is every reason to exempt from tax all investor-owned power companies so that all consumers of electric power may have the same special privilege. It should be emphasized that no one in the investor-owned electric business has urged that such business should be tax-exempt because the government-owned and -sponsored power business is so exempt. This indeed would be the tail wagging the dog. The entire investor-owned industry, on the contrary, does urge that this un-American inequality be wiped out by taxing all alike.

Finally, on the rather pontifical and certainly dubious theory that "that which the state has given the state may take away," Mr. Ely amazingly urges that nothing is taken away by substituting public ownership for ownership by private investors and there is no encroachment on private enterprise. This is the heart of the matter and it really gets down to this: is America committed to a policy of national socialism? If so, the electric power business should be socialized along with all others; but if not, and private enterprise seems to remain as the basic ruling philosophy, then there is no more justification for special-privileged governmental enterprises in the electric power business than there is for special-privileged governmental enterprises, say, in the automobile business. Both are "essential"; both owe their present state of development to private capital and initiative and both should be fully taxed as an industry with the tax equally borne by all the enterprises engaged therein.

Mr. Ely concludes his statement by an admonitory allegory in relating that the predatory prehistoric Tyrannosaurus Rex devoured the soft and peaceful Brontosaurus. The reference is a bit obscure. The spreading network of public power leaves little doubt as to who is devouring, or at least attempting to devour, whom. The investor-owned segment of the electric power industry is neither soft nor is it voracious, but from its viewpoint certainly the preferable admonition is that which appears on the facade of the structure occupied by the world's greatest tribunal, the Supreme Court of the United States: "Equal Justice Under the Law."

Cincinnati G & E Has 5 Million Safe Man-Hours

MORE than 5 million consecutive man-hours have been worked by four departments of the Cincinnati Gas & Electric Co. without a disabling injury accident.

This outstanding safety record was established by CG&E's Electric Distribution Department, Miami Fort Power Station, Electric Production and the Walter C. Beckjord Station.

Each of these electric departments received the Edison Electric Institute Safety Achievement Award, which is given to those departments which have completed a million or more consecutive man-hours without a disabling injury accident.

Miami Fort Power Station has completed 2 million man-hours without a disabling injury accident from Sept. 7, 1957, to Aug. 14, 1960.

The Electric Production Department compiled its record of a million or more man-hours without a disabling injury accident from Jan. 5, 1960, to Aug. 29, 1960.

The Walter C. Beckjord Station worked one million consecutive man-hours without a disabling injury accident from Oct. 3, 1957, to Oct. 6, 1960.

The Electric Distribution Department compiled its record of a million or more consecutive man-hours without a disabling injury accident from Dec. 30, 1959, to May 17, 1960.

Before and after scenes are shown above of U. S. 66 Bypass, west of Classen Circle in Oklahoma City, before and after the highway was lighted. This is just one of the many streets and highways that have been properly lighted in the Oklahoma Gas and Electric Co. area.

Unlimited Opportunities Seen for Proper Street Lighting

THE investor-owned electric utility industry has a vast, barely tapped source of revenue in street and highway lighting, which could add nearly $250 million annually to the industry's income by 1965, the Second Street and Highway Lighting Conference was told in Chicago, Oct. 19-20.

The impressive roster of speakers at the conference, sponsored by EEI, *Electrical World* magazine, and the National Electrical Manufacturers Association, was drawn from within and outside the industry.

These important subjects were stressed at the conference:

- The inadequacy of the nation's street lighting presents an immense challenge, because, on a mileage basis, the nation's main arterial streets are about 10 percent adequately lighted; secondary business streets about 3 percent; and residential streets about 1/10 of 1 percent.
- The traffic toll due to darkness, as reported by the National Safety Council, and insurance statistics in a

12-month period, adds up to: 20,000 human lives, an additional 800,000 disabled persons, and an economic loss of $2.5 billion.

- Goals are necessary if progress is to be made in improving residential street lighting in the nation.
- To meet the growing load and to take steps to correct the decline in revenue per dollar of investment as residential areas expand, utilities should review present street and highway pricing policies, make market analyses, and develop a sales program to achieve the full potential of street lighting service.
- A 50 percent increase in illumination can be obtained on roadways at less than 25 percent added cost.
- Street lighting modernization provides more profitable opportunities now than ever before for cooperative action by government, utility, and manufacturing representatives.
- The investor-owned electric utility industry, helpful partners in planning and carrying out many outstanding street and highway lighting programs, looks forward to participating in many more programs as the nation moves into the future with people accustomed to new standards of lighting in the home, the office and on the streets and highways.
- The real ultimate benefits of good street lighting are social rather than economic.
- A well-lighted city not only expands community prosperity, but inspires community spirit, stimulates community growth, and promotes business.

Calling the untapped street and highway lighting market a virtual "gold mine in the sky," EEI President Sherman R. Knapp said the next five years of concerted street lighting sales promotion can also give financial impetus to the manufacturers, in addition to adding about $250 million to the revenues of the investor-owned electric utility industry. (See page 389).

E. C. Powers, Educational Director of the Street and Highway Safety Lighting Bureau, pointed out the inadequacies of the nation's street and highway lighting. In addition to the 20,000 human lives lost each year because of poor lighting and the economic loss of $2.5 billion, there is another $1.5 billion loss in crime and policing costs, he said.

"We have documented instances where modernized street lighting has cut night fatal accidents by an average of 64 percent and street crimes by 70 percent," Mr. Powers told the conference. "Taking a 50 percent reduction (to be conservative) we see that adequate street lighting would cut the annual economic toll of traffic accidents and crime by $2 billion."

Education Is a "Must"

To meet the challenge of proper street lighting, "we must educate ourselves on what it costs a community to get along without adequate street lighting, and on all the benefits a community gets from the small amount it would pay to have the lighting," Mr. Powers said. "We must plan a program of education. That plan must utilize every available channel for communicating our knowledge to others. The plan must take cognizance of all individuals—both public and private—who must be educated."

E. E. Gayman, General Supervisor of the Community Development Section of The Cleveland Electric Illuminating Co.'s Area Development Department, asked the question: "What kind of lighting should we have?"

"We think street lighting should be a part of every modern municipality, which means it should be widely accepted, widely used," he said. "This means basically utilitarian lighting, for lighting—not equipment—is what we sell. Far and away the majority of our lighting is wood-pole, overhead construction. We're in most of the main streets anyway, with distribution transmission, and subtransmission lines, so use these ready-made supports for our lighting system."

Getting Compensatory Rates

Mr. Gayman further asked: "How can you get compensatory rates? You have to know your costs and you have to be willing to explain, not defend . . . the soundness of doing business at a profit. Our incandescent rates are not as compensatory as we'd like them to be, admitted. But we've been able to improve our rate of return by designing mercury rates within the past four years to take into account today's prices of equipment and labor. . . . Use of mercury or fluorescent can improve your rate of return."

Mr. Gayman added that "if you seriously want to improve your rate of return, the volume approach of the Illuminating Engineering Society minimum recommendations applied through the entire town will likely triple your street lighting revenue."

T. L. Sharkey, Manager, Rates and Pricing Department, Ebasco Services Inc., recommended six steps for the utility to meet the growing street lighting load and to correct the decline in revenue per dollar of investment.

- Review its present street and highway lighting pricing policies.
- Make market analyses of the street lighting business that would be available if higher lighting standards were met.
- Make economic feasibility studies of the investment required.
- Ascertain revenues required to service additional investment if newer standards of lighting are met.
- Determine a rate of return for future pricing of the service, with due regard to public relations.
- Develop a sales program that will achieve the full potential of street lighting service.

"It seems obvious," Mr. Sharkey said, "that, in general, state commissions have left the matter of street lighting rates to negotiations between the utility and its customers—the municipalities and towns in the service area—although it appears that some authorities recognize that the level of rates may not be sufficient to pay the proper share of furnishing service. With this indicated regulatory climate, it seems to be up to the utilities, themselves, to put street lighting

service on a self-sustaining basis to the extent that company policy dictates."

Mr. Sharkey said he thinks it is time for every utility to:

- Determine the present level of earnings on investment in facilities devoted to furnishing street lighting service.
- Review the factors which have caused street lighting earnings to remain depressed in the past, and the extent to which they will affect future operations.
- Analyze return by various sizes and types of luminaire to see if adoption of modern standards of illumination with fewer types and higher lamp ratings would make present rates more contemporary.
- Study the use of multi-part rates for fixed charges on equipment, maintenance and supply of electricity to better identify the costs.
- Appraise the effect of transfer of ownership of heavy investment facilities to municipal or other local governments.
- Make some estimate of the "customers' " ability to pay for adequate lighting at truly compensatory rates.

"In recent years," Mr. Sharkey said, "street lighting fixtures, control components and other equipment have undergone extensive redesign and refinement. These changes have resulted in a greater appreciation, both on the part of the public and municipal authorities, of the value of adequate lighting, and the favorable influence it can play in crime reduction, pedestrian and automobile accident frequency rates and community development and improvement programs. Several electric companies which recognize a greater responsibility to maintain adequate and reliable service are developing long-range plans for improvements and expansion. Undoubtedly, more expansion and rehabilitation of existing systems can be anticipated.

"In the years to come," he continued, "there will be a tremendous increase in competition for the tax dollar to support improved and expanded local community services. Unless the street lighting pricing structure is placed on a proper basis, other electric customers will be forced to carry an additional burden, which should be sustained by all taxpayers, by effective taxing standards.

Billion-Dollar Business

"Even at existing rates of charge, street lighting, in the next two decades, will be a billion-dollar business," Mr. Sharkey predicted. "Now is the time for utilities to evaluate the sizable impact of anticipated highway lighting load. If the pricing structure is put on a modern, realistic basis, it will be possible to negotiate contracts which will provide a return worthy of full promotion of the service."

W. H. Edman, Vice President in Charge of Street Lighting, Holophane Co., said, "I am convinced that if we were to light our roadways to levels at least 50 percent higher than the present recommended practice, we would still be conservative. I am also convinced that users would gladly pay the small additional cost and be a good deal happier. It should be emphasized that a 50 percent increase in illumination can be obtained for less than 25 percent added cost."

This interchange on Route 25, in Dayton, Ohio, was recently lighted with more than 300 20,000-lumen fluorescent fixtures.

Mr. Edman told the conference: "Along with getting more scientific data to more precisely confirm the experience and judgment of those few people who possess qualified lighting knowledge and experience, one of our main problems is that of education. However, I am confident the task of convincing public officials that more lighting can be justified will become easier with added knowledge and more scientific data about the complex night vision problem.

"I do not intend to be critical of public officials or utilities who seem to be reluctant to go forward with a conviction that higher levels are needed to fulfill present and future traffic safety requirements," Mr. Edman continued. "I know they want and desire more data and information. However, I think, in the meantime, that we can and should promote lighting levels at least 50 percent above present recommended minimums of the American Standard Practice. Rest assured that this will not be excessive lighting, and the public will be grateful and willing to pay for these heretofore unrealized benefits."

J. S. Smith, General Manager, Outdoor Lighting Department, General Electric Co., Hendersonville, N. C., pointed out many reasons why street lighting modernization provides more profitable opportunities for cooperative action by government, utility and manufacturing representatives. They include:

- The mark of progress. It builds public spirit and welds civic pride into a real and purposeful force.
- A safety essential. Street and highway lighting is essential to safety.
- Profitable load. From the utility's point of view, lighting can build profitable, off-peak load.

The interchange on U. S. Route 25, in the service area of The Dayton Power and Light Co., is the first interchange to be lighted on the route between Detroit and the south.

• New light sources. New light sources offer opportunities of more light per dollar for users, and at the same time, new rates that provide an equitable return to power suppliers.

• New product developments. Revolutionary product progress of the last few years makes it easier to install and maintain street lighting service.

• Exceptional price values in street lighting equipment. At present prices street lighting equipment represents an exceptional value. Since 1939, hourly wage rates have increased 228 percent; costs of materials 150 percent; prices of machinery 119 percent; outdoor lighting prices only 79 percent on a wattage basis.

• Higher light levels. The trend to higher light levels makes street lighting more useful to the public and more profitable to the utilities.

• Demand for residential lighting. Better residential lighting is not a new trend, but one which has been sharply underscored by the shift of population to the suburbs and the growth of rural areas. The public is demanding good lighting for its own convenience and safety, and they propose to get it one way or another.

• Growth of "private lighting." In unincorporated areas, power suppliers are finding and serving a vast new market for "private lighting"—lighting installed on private property for a small, but profitable, monthly fee.

• Public demand. Underscoring all these factors is a groundswell of public consciousness of the importance of good lighting to all citizens, and their determination to have it. More and more the public is paying for lighting whether they get it or not.

Edwin Vennard, EEI Vice President and Managing Director, said that "highway and expressway lighting is a field in which our experience has been gratifying. Most uses of electricity," he explained, "involve making life more meaningful and pleasant for the American people, or increasing standards of living. Highway lighting is one use with the higher purpose of saving lives. It should be our objective to see ample lighting of every danger zone on America's highways."

Discussing the public relations values of street and highway lighting, Mr. Vennard pointed out that "electric utilities . . . have found that lighting is one of their best media for (public relations.) In the beginning, lighting was their chief end-product, and 'electricity' and 'light' are still strongly associated in the public mind, and will likely remain so.

"In a sense, street and highway lighting is a utility responsibility and the utility will at least share the criticism caused by poorly lit roadways. The public has come to rely upon the utility to see to it that adequate lighting is used where it is required. Neglect of this opportunity to light up the service area can be embarrassing, particularly when the motorist may travel through the areas of several companies and thus be in a position to compare.

"Another factor not to be overlooked is that every segment of the public makes use of the roads; investors, employees, general public, government officials —all are exposed to street and highway lighting.

"This is advertising of a sort, and the power supplier is in a fortunate position because he gets paid for it. True, street lighting is not one of the best media for advertising; there are others more effective. But here is one upon which we can realize some revenue, a rare opportunity indeed. The advertising value is another of those intangibles that should be weighed in figuring the return in providing the service.

"If we are to see substantial progress in street lighting, we must see lumens delivered at the lowest possible price. This means good fixtures with good output and high wattage at an economical price, with some assurance that future maintenance will be minimal. Manufacturers are making great strides in this area. Each passing year sees new developments taking us nearer this objective.

Selling Is Easier

"Selling street and highway lighting has been made somewhat easier in recent years by the increased public awareness of civic problems. With more and more automobiles on the road, traffic and parking problems have increased. Population gains in most towns have tended to multiply this difficulty, and people are seeking new solutions to problems in police and fire protection, health and sanitation, parking and traffic control. Also the fact that serious problems of this sort can arise within the short span of 10 to 15 years has inspired some thinking ahead, and cities and towns are now more willing to discuss installation of systems adequate not merely for today's needs but for years to come. All of us who have an interest in better street and highway lighting should take full advantage of this circumstance.

"America's electric power companies have been helpful partners in planning and carrying out many outstanding street and highway lighting programs. They look forward to participating in many more as our nation moves on into the future. People throughout the

country have become accustomed to new standards of lighting in the home, in the office and factory and on the streets and highways. Well-lighted streets and highways are certain to be part of the miracle of tomorrow. The electric companies welcome the opportunity in this, as in other ways, to contribute to the growth, the prosperity, and the strength of America."

J. A. MacCracken, Lighting Engineer, New England Electric System, pointed out that the real ultimate benefits of good street lighting are not clearly economic. "For who can put an economic price tag on freedom from fear of sudden death in the twilight, freedom from fear of criminal attack in the darkness, or the simple quiet pleasure of living in a beautiful well-lighted neighborhood?" he asked. "These are rather social benefits. They are more properly treated in a sociological discussion. Yet they must be recognized as a by-product of the truly economic task of the street lighting team—that of furnishing the consumer public with the most light on the street for the least dollar expenditure.

"It would seem, therefore, that . . . we are . . . forced to certain conclusions," Mr. MacCracken continued. "They are as follows:

"In a strictly economic sense, both the utility and the manufacturer have not only a right but a duty to earn a fair profit from street lighting in operating and producing, respectively. The utility should actively promote street lighting sales. There appears to be no immediate danger of over-selling or saturating the market. And, above all, in this activity there appears one paramount, economic and social fact of life which we, as members of a great industry—the street lighting industry—should keep indelibly stamped upon our minds. . . . It is always the consumer, the public, you and I, in the final analysis who get the lion's share of the benefits from good street lighting."

Mrs. D. O. Arnold, First Vice President, General Federation of Women's Clubs, said:

"A well-lighted city not only expands community prosperity, but it inspires community spirit, stimulates community growth, and promotes business. It is easy for both men and women to become accustomed to certain home inconveniences until someone or something prods us into correcting the situation. It is similar in our nation, but J. Edgar Hoover prodded the women when in 1958 he pointed out the shocking crime rate increase in one year was 9.3 percent, and reminded us that certain areas in some of our cities and towns were veritable "no-man areas." Those are the shadows. The increase in automobiles—146 times as many cars on the road today as in 1910—has brought light in ease and speed of travel, but a shadow of fatal traffic accidents that makes our blood run cold. The light comes with public awareness and the women of the GFWC are ready to try to produce that light. They have leadership, enthusiasm, sympathy and understanding concern. They must have direction and guidance, and the cooperation of utility and municipal authorities—a team effort with team benefits."

LBE Women's Conference Slated Jan. 12-14

THE Fifth Annual "Live Better Electrically Women's Conference" will be held Jan. 12-14, at the Edgewater Beach Hotel, Chicago, Ill. Some 300 representatives from electric utilities, universities, farm bureaus, magazines, newspapers and radio and TV associations are expected to attend.

The trend toward total electric living will be stressed in the conference, which has as its theme "Parade of Progress."

Mrs. Marguerite Fenner, Chairman of the EEI Home Service Committee, which sponsors the annual conference, said that the three-day meeting will be keyed to relating the rapid growth and potential of electric living, especially the total electric concept in home building, with progress, problems and surveys in this area.

Keynote speaker for the conference will be J. H. K. Shannahan, Vice President, American Electric Power Service Corp., who will discuss the growth and developments of the electrical industry in the present century.

The importance of the role of women in an era of electric living and their contribution to its advancement will be the topic of a talk by Ralph Zeuthen, Manager of the Live Better Electrically Program.

Besides the development of the total electric concept in modern living, the growing international importance of electricity in our daily lives will be a high spot of the conference in a special address by W. C. Barlow, Executive Vice President of the Opinion Research Corp.

Films and exhibits will include a presentation of a special kitchen planning service developed by the EEI Home Service Committee for consumer education, called "Mrs. Tilley and Her Lemon Pie Kitchen." A whimsical presentation showing progress made in fabrics and laundry equipment, using the collection of Mr. Charles H. Rutledge of the DuPont Co., will be made.

Among other speakers at the conference are Dwight Van Meter, Vice President of N. W. Ayer and Son, who will discuss the role of women in the American economy; Myrtle Fahsbender, Director of Residential Lighting, Westinghouse; and C. E. Anderson, Virginia Electric and Power Co., discussing house heating.

On the final day of the conference there will be a special tour of the electrical manufacturers' exhibits at the Chicago Merchandise Mart.

As in the past, there will be no registration fee for members of the press. Advance registration for others may be made by writing the Home Service Committee, Edison Electric Institute, 750 Third Ave., New York 17, N. Y.

Today's Street and Highway Lighting Market—

A 'Gold Mine in the Sky'

By Sherman R. Knapp*

President, The Connecticut Light & Power Co., and President, Edison Electric Institute

WE in Connecticut feel the potential in street lighting sales is *fabulous*—so fabulous, in fact, that I predict it will be one of our greatest all-time markets in years to come. We do not look upon it as the "pot at the end of the rainbow," but as big business. The street lighting market, a gold mine in the sky, is for the taking!

The three keys opening the door to this golden opportunity are the words: Undeveloped, Need, and Demand. For brevity's sake we might coin the slogan, "UND Means Profit with Light."

Let's look at the word "undeveloped." Modern street lighting is a mere "babe in the woods" when it comes to sales maturity. The field is wide open for new and increased sales, particularly in the lighting of residential streets and the miles of new highways being built throughout the nation. And there is the almost completely untapped market for private, or back-of-pole, street lighting for commercial interests such as restaurants, gas stations, and motels. Needless to say, the sincere promotion of all areas of street lighting by the utility companies will result in revitalized sales of street light equipment and greater dollar volume to the manufacturers.

What about the word "need"? There should be little question as to the complete and urgent need for better street lighting in virtually every community and on practically every major highway in the land. Just ask the lady who has to walk through dark, ominous shadows on the dimly lighted street where she lives.

Rockville, Conn., served by The Connecticut Light & Power Co., received a *Reader's Digest* award for its outstanding street lighting improvement.

This is a view of State Street in Chicago, when new lighting made it the "brightest street in the world." Hundreds of thousands saw "light-up."

*This address, prepared by Mr. Knapp, was delivered at the Second Street and Highway Lighting Conference, Chicago, Ill., Oct. 20, by R. E. Ballard, Assistant Commercial Sales Manager, The Connecticut Light & Power Co.

Or the truck driver who didn't see the curve ahead in the black of night until it was too late.

"Demand," the third key word to better street light sales, is a direct result of the new public awareness of what good street lighting can mean to community and individual alike. If there is any doubt that people "want" better street lighting, check with local town or city officials. They'll tell you, I'm sure, that the demand for street lights is usually a top priority request by their constituents. I personally have marveled at the contagion of "street light fever" in our own Connecticut communities where more than half a town's population turns out for a typical street light turn-on ceremony.

Now—to be specific about the possible growth areas for street lighting. The job yet to be done is almost overwhelming in scope. The total street lighting picture is far from bright so far as adequacy is concerned. Present street lighting in the United States is less than 10 per cent adequate. This means then that more than 90 per cent of the nation's streets need lighting that can meet merely the minimum standard set up by American Standards Association or the usual lighting by the "code."

Lloyd M. Johnson, Commissioner of Chicago's Department of Streets and Sanitation, says that "Street lighting is a safety measure and you don't think of minimum safety."

With some 350,000 miles of residential, arterial and business area streets sorely in need of better light, "code" or minimum standard lighting does, however, offer a starting point.

Our greatest sales efforts will be directed toward the relighting of our residential streets. Seventy-five percent of all the streets in this country are residential and it is shocking to learn that only 2 percent of these, the very streets on which we live, have been lighted according to minimum recommendations.

The next big push will be towards relighting the traffic streets, since 40 percent of these are in need of additional illumination during the dangerous nighttime hours.

Main Street, USA, appears to be pretty well lighted in relation to the other streets in the community, but this is no reason to slacken our efforts. More than 15 percent of our Main Streets still need lighting and many more Main Streets could probably undergo a complete modernization program in their lighting systems, particularly in the face of increased traffic.

This brings up still another fertile market—one that is virtually untouched by street lighting—the network of interconnected national highways now being constructed or contemplated. It would be Utopian to hope for modern lighting over the entire 41,000 miles of this Federal Interstate Highway system, but nonetheless, it remains the ideal "target for the night." I don't think this is too farfetched to visualize when you stop to think that there will probably be 100 million cars on the road by 1975, or some 30 million more than there are now.

To the highway officials who tell us that lighting costs too much, we can give these facts: that adequate illumination costs, on the average, less than one percent of the total cost of the highway that is lighted, and maintenance costs for the lighting are less than most states pay for picking up after the notorious "litterbugs," or for painting those handy white center lines.

We have conclusive evidence that light, and light alone, can save lives. This has been proven on the new 129-mile Connecticut Turnpike. The State lighted 53 miles of this high-speed road because interchanges in this relatively urban area were located an average of one mile or less apart. In its first-year accident record, there were only 1.5 deaths per hundred million vehicle miles, compared to 4.0 on State rural roads during the same year. And our own Governor Ribicoff, a leader in traffic safety, has said publicly that he could not conceive of another heavy traffic highway being engineered in the United States without lighting.

The market is there. It's up to us now. And if we meet opposition to lighting complete highways, let us at least convince highway officials of the need for modern lights in the 10 critical areas of driver indecision —the interchanges and intersections, connections to service areas, tunnels and underpasses, dangerous curves and hills, bridges, overpasses, railroad grade crossings, elevated and depressed expressways, high traffic density zones, toll plazas and other transition sections. These are all danger spots and the need for illumination should be apparent.

What about the private street lighting market? Far too little attention has been paid to this sales-getter. Take a look around your respective communities and you will probably come away surprised as to the number of prospects there are for private street lights. Commercial establishments which recognize that modern lighting can deter crime and stimulate business are "naturals" in this unlimited market. One advantage in this area of selling is that, in many cases, existing poles on the streets can be utilized with back-of-pole installations. This, of course, means less installation cost to the buyer, plus additional revenue to the utility.

What does all of this mean in dollars and cents? If this "gold mine in the sky" is tapped on a nationwide basis, by 1965 the investor-owned utility companies can expect a 60 percent increase in annual revenue, or some $246 million more than at present. This is about twice the increase experienced between a similar five-year period from 1954 through 1959.

The next five years of concerted street lighting sales promotion can also give financial impetus to the manufacturers. They can look forward to the sale of some 950 thousand additional luminaires to the same utility customers, who, by 1965, should be selling street lights as fast as the proverbial "hot cakes."

But this is not just a one-way street. The community can benefit too. By 1965, with additional illumination, large cities and small towns should begin to notice the very tangible results of a lower crime rate, fewer traffic accidents, less vandalism, a stimulated community growth and spirit, a more attractive place in which

to live and do business, higher real estate values, and lower taxes and insurance rates. All of these are nothing less than a "gold mine in the sky"—and all of these are well within a town's budget under a well-planned street lighting program.

Street lighting offers a new approach to utility selling. And there is an infinite number of new methods still to be tried toward the stimulation of sales. Since 1954, we at CL&P have varied our promotional techniques yearly to "preach the gospel" of good street lighting and its benefits. The "high pressure" or "hard" sell methods are impractical in this type of selling and, I might add, are not needed if the story is rightly told.

For example, in the city of Rockville, Conn., all it took from us, as a utility company, was an occasional, but gentle "nudge" to move the city into national prominence earlier this year as one of the best-lighted communities in America. *Reader's Digest* magazine, recognizing the importance of good street lighting, honored the officials and the people of Rockville with mention in the magazine's June issue and later with the *Reader's Digest* Public Service Award for the city's street light improvement program. The award-winning program began in 1956 when the first fluorescent street lights were installed in downtown Rockville in accordance with recommendations submitted by our company, which would ultimately provide "code" lighting on all city streets. Each year since, more lights have been installed so that the city is almost completely fluorescent and is now known as "The Fluorescent City." Rockville is more than halfway toward being completely "code" lighted.

'Behind the Scenes' Promoters

To publicize further Rockville's street lighting achievements and to compliment the city, we at CL&P acted as "behind-the-scenes" promoters for special ceremonies called The Fluorescent City Festival, during which time I presented the mayor with a bronze replica of the *Reader's Digest* Award certificate. The amazing part of it was that more than 5,000 of the city's population of just over 10,000 turned out for the festival. And it all began with a "soft" sell approach on the part of CL&P.

Reader's Digest has offered to present a similar award annually to the community that we, as a company, nominate yearly as the one with the greatest street light improvement. I think *Reader's Digest* deserves high praise for its efforts in helping us in the promotion of better street lighting for the communities of Connecticut.

It took us 36 years, prior to 1954, to reach the $1 million mark in annual street lighting revenue. By contrast, it has taken just a little over six years for us to reach the $2 million mark.

By actively and aggressively promoting street lighting through dinner meetings for municipal officials, town-wide surveys, "before" and "after" bus tours, and city-inspired "turn-on" ceremonies, we have succeeded in doubling our annual street lighting revenue since 1954. Until 1954, we as a company averaged a somewhat normal 4 percent increase in street lighting revenues per year, but since that time CL&P has achieved a better than 10 percent annual increase.

Nicollet Avenue in Minneapolis, Minn., served by Northern States Power Co., is shown with its new street lighting.

Progress? To be sure, but it is even more indicative of the potential that is there—that "gold mine in the sky." It is significant, I think, that for the 12 months of 1959, CL&P street lighting revenues were up 11.5 percent over the corresponding months last year. And this at 6 percent return. It is even more significant that the lumen output per lamp in our service area has multiplied almost two times since 1954. People not only want *some* light, they want *better* light.

Still, as a company, we are not content with this progress. We have 15 towns in Connecticut which still have to be sold their first street lighting, in addition to the many towns we are constantly trying to bring up to code recommendations through long-range improvement programs. The potential is everywhere. The saturation point is virtually unattainable.

The latest trend in the unexplored utility sales market seems to be directed to the promotion of private street lighting. And, here again, my company has achieved some successful results from aggressive promotion. After the initial sale, private street lighting sells itself with nightly demonstrations of the service it renders.

In the first seven months of 1959, one of our divisions reported 51 new private street lights installed with an anuual revenue of over $4000. By the end of 1959 there were about 1900 private street lights of all sizes in CL&P's service territory, providing an annual revenue of about $110,000. The trend now is toward the installation of the 21,000-lumen fixtures—both mercury and fluorescent—by the farm, drive-in theater,

gas station and restaurant owners who are representative of the private street light buyer.

Last year we tried the "blitzkrieg" technique in selling these lights. Five days before this "blitzkrieg," jumbo post cards mailed to the prospects told of the advantages of private street lighting and its low cost. After a morning briefing session and a scouting mission to determine whether possible customers had distribution poles adjacent to their property, 17 commercial representatives from all five of CL&P's divisions swooped down on 96 prospects in one district. A total of 86 lights representing an annual revenue of $7,400 resulted from this one-day "blitzkrieg."

The basic key to all street light sales is "enthusiasm" on everybody's part. Without it the job is hopeless. The utmost cooperation is vital between utility, manufacturer, and the municipality.

At CL&P, we have been fortunate in past promotional efforts to have the combined services of representatives of five street light equipment manufacturers on the same program. Each has delighted in expounding on the over-all benefits of street lighting, and none has ever deviated to deliver a "commercial" about his specific product. This, I think, is the cooperation we should all seek.

In the same vein, the utility and manufacturer should make it immediately apparent to the municipal officials that they are sincerely interested in helping the community to progress through better street lighting. After planting the "seed," both utility and manufacturer should take on the role of consultant only, and let the town or city officials "carry the ball" for street lighting improvements. Annual utility-sponsored dinner conferences, however, will keep changing administrations in touch with the street lighting message.

The acceptance of trial installations of street lights, as offered by CL&P in all communities, is "proof positive" that the townspeople are keenly aware of street light improvements. To date, none of the 90-day trial installations, given free to the town for that period of time, have been removed. In every case, the favorable reaction of townspeople has upheld the good judgment of municipal officials in accepting the trial.

The "need" for good or better street lighting cannot be over-emphasized in any promotion. And this "need" should be advanced in any way possible by both utility and manufacturer. Somebody once said that if you have a good product it will sell itself. This is only partly true in street lighting sales.

No matter how good the product, or lighting fixture itself, the municipal official, and in some cases the townspeople themselves, must agree on the absolute "need" for such a fixture and determine whether the cost to the town is worth that need. In effect, we have to sell the "sizzle" and not the steak. I'm not so sure that's such a bad idea no matter what you're selling.

Street lighting, however, does enjoy an advantage over other commodities inasmuch as we can sell real benefits at guaranteed costs. Because we can do this, because we can tell a town or private customer exactly what a street light will cost for the month or the year, and because the customer can see and even feel the benefits, the utility is never backed into a corner or put into a defensive selling position. Of course, this is only true providing we are consistent with our promotional handling and finesse and not like the gentleman who uses one shot of fertilizer and then sits back hoping the grass will grow.

The possible market by 1965 is tremendous. But, let's dream a little. Let's take a look at the ultimate market—the final goal—the really big "gold mine in the sky."

If all utilities promote street lighting the way it should be promoted on a nationwide, cooperative basis, they can count on an ultimate annual revenue of one billion dollars from this one market.

So far as the manufacturers are concerned, they can count on an ultimate of 20 million luminaires in service on the "code" lighted streets and highways of the nation.

And to the communities we serve, we can promise from all this—the highest attainable standards of community living.

The challenge is there. The responsibility is ours.

G. M. Allen

G. M. ALLEN, Industrial Sales Director for The Detroit Edison Co. since 1953, and long active in the EEI Sales Division, died Nov. 18, after a brief illness.

Mr. Allen was a 1928 engineering graduate of the University of Illinois. He joined Detroit Edison that same year as a cadet engineer.

He played a major role in the development of the firm's industrial steam business and was in charge of all large industrial accounts.

Mr. Allen was a past chairman of the EEI General Power and Heating Committee. He was a member of the Greater Detroit Board of Commerce, and the Detroit Yacht Club.

BUSINESSMEN Must Lead the Way

By J. W. McAfee
President, Union Electric Co.

I'VE really just learned enough about area development to begin to appreciate what an enormously big subject it is, and how many technical aspects it has. I knew at the outset how well it fitted into the electric utility business, and I had a conception of it as a way to get some more business and to help our community. I like the notion that the electric utilities are undertaking the job of area development.

We had quite a remarkable fellow around St. Louis when I first came here. He was not an impressive looking little fellow, though he made a great success of his life.

His name was Cap Tilles. His first regular activity was that of being a waif on the streets of St. Louis. He was a very small man, had a slight impediment in his speech, but he was one of the smartest fellows I ever knew, and Cap Tilles, by the time he died, was one of the leading capitalists of the town, and had investments in many of the good enterprises of this area and of the whole country.

He had no children. He left a rather large foundation as a memorial to his wife, who died a good many years earlier, which has done a great many good things in St. Louis.

The reason that I mention Cap Tilles is that he had a motto. I was once in a meeting when I was a practicing lawyer, talking with Mr. Tilles about the possibility of his going into a rather large investment that some men were trying to make attractive to him. Cap had had a study made of the area and wasn't too much impressed with what had been done there, and finally he said, "Well, men, I just operate on one principle. Put me where the money is and I'll get my share."

Opportunities Necessary

There's no use trying to do business in any line unless you are either in an area or can make the area you are in a strong one with some opportunities. And that is, of course, the concept that started us on this enterprise of ours, and I suppose the same considerations influenced you.

One of the reasons I have thought that area development was much safer left in the hands of business enterprises than entrusting it, however well intentioned, to either eleemosynary institutions or to the government, is that those of us in business who have the responsibility of managing the money of others are of necessity charged with producing not only a result but a *sound* result. And those of us who are in a business like the electric utility business—that has nothing temporary about it—are charged with producing a result that's not only sound today, but has sound implications for the future, for we expect to see our enterprise in business here for a great many years.

Long-Term Outlook

Some developments start in an area that might, at the moment, create a spectacular or enthusiastic response, but have implications that may be a direct disadvantage in the long pull.

As a brief illustration, I think not of the development, but the taking over of some of the beautiful lands in our Ozark hills. There are some magnificent things down there—beautiful streams, lovely hills, an abundance of birds and flowers and a great many things that are quite interesting to those of us who have a love of the outdoors.

The government has, from time to time, taken over great areas of that land, which isn't particularly productive. Everybody was originally enthusiastic about it, and I'm not sure that we aren't still to some extent, but the implications for the people in the area have been quite serious. Some of the counties down there are not rich counties, and are sparsely settled.

When you take about a third of the property off their tax rolls, you have created a whale of a problem for that county, and its people, and its school district, and everyone in it regardless of how much you may enjoy preserving the forest and the natural beauty. And in the long pull it will be a serious disadvantage to the governmental unit in question.

A great many people are now beginning to think about these matters. Because, having taken the land, the Federal government has done virtually nothing with it. There's some pressure now to develop it in a way that would make it more acceptable to tourists and travelers. Maybe, if those things are ultimately thought out and developed, they will replace some of

An address before the Seventh Annual Area Development Workshop, St. Louis, Mo., Nov. 15, 1960.

the prospects that were taken from the people in the area when the land was originally taken over. I hope I don't sound as if I'm trying to criticize the program. It's one with the objective of which no one can disagree, and certainly no one in this area does.

I'm only trying to illustrate that the program was not conceived on a sound basis. No effort was made to see what it would do to the economy of the little local government, or to the economy of the area itself, or of these little towns.

Inadequate Original Planning

So far as I can observe, there was no adequate original planning.

No thought was given to what it was to produce, and what it was going to do to people who had spent their lives there, and who certainly were entitled to some consideration.

I'm sure you have observed many times when the enthusiasm of government for something that would be popular—at least for the moment—has induced it to promote projects which, when viewed a few years later, had to be assessed on quite a different basis. And that is inherent in the government. Most of our public offices are, of course, designed for limited terms. Their concern with public reaction is a short-term concern. Sometimes it's as short a term as the next election, but always a short term.

No one person has a direct responsibility as to what the ultimate result may be of the program which he's advocating.

Objective of Government

It seems odd to me that those who are enthusiastic about having our government in everything have so lost sight of the concepts on which we set up a government in this country. We didn't try to set up a government that was efficient. That wasn't the objective. The objective was to set up a government which could not become tyrannical. We set up a government designed with its principal objective the protection of the life and freedom and individuality of the private citizen. So we surrounded our officials with checks and balances of all kinds that divided responsibilities and divided authority, with the express understanding that no one person was going to have enough authority or enough power to really be responsible for any major undertaking of the people.

Now can you imagine a setup that's less well designed for the conduct of business, or for the promotion of things related to the economy or the future economic development of the country?

I think our government was wonderfully designed for the purposes it was set up for, and I deplore the encroachments that are being made in one way and another on those devices, the purpose of which was freedom, not efficiency—not an organization designed to conduct business.

It's rather startling to me that the issue between the Marxists and the Free World is so sharply and clearly drawn. The objectives that we had in our country at the beginning were really what you, if it doesn't sound too pompous, could characterize as spiritual. We were going to have freedom—freedom of religion, freedom of choice—in every way that could be done without encroaching on the rights of others. The Marxist's objective, of course, is strictly material—the production and distribution of material. The individual means nothing. Rights, if they interfere with this objective of producing material things, are sacrificed. They're looking for material efficiency, and to some extent that's what a business organization is set up for.

You've got to have a kind of an oligarchy to run a business. Somebody has to make the decision, even if it's not the best one. A bad decision is better than fooling around with no decision.

I just think about how this issue manifests it so clearly in other ways. Take the term "public ownership." Who else in this country can own anything but the public? Those who are advocating the use of that fine, appealing term for the promotion of a socialistic idea are not thinking about public ownership; they're thinking about *enforced* ownership.

The great difference is this: under the system that we have been advocating, if a man wants to be an owner of our business, all he has to do is to be an industrious, frugal fellow and accumulate some savings and call up a broker. He can become an owner in 15 or 20 minutes.

And if the time comes when he doesn't care to be an owner anymore, he can cease to be in that same time. He can get back whatever the market will pay for the ownership of his share.

If, as is quite obvious, you use the socialistic approach, and the government takes our business, every taxpayer in our jurisdiction becomes an owner whether he wants to be an owner or not. He has no longer any choice, and furthermore, he stays an owner as long as he remains a taxpayer. So it's very largely a question of whether you're going to have, on the one hand, the greatest amount of freedom of choice, or on the other, the greatest amount of compulsion and management. This great compulsion and management will go into area development also if the government gets into this business. Communities won't be having much to say about the kind of development they have. There will be many planners with a set technique that they would like to apply to the whole country. They very easily could give us a uniformity of development that would no more suit the tastes of my community than, possibly, it would yours.

A Growing Difficulty

It's our task, along with a great many others we have, to try to get people to have some appreciation of that fact. And it's a growing difficulty. We've become prosperous in this country, and life has become easy enough and complex enough so that a great many people simply don't want to face the responsibilities of

being wholly free. If some man says, "now here's a great scheme, you don't have to worry about it, leave it to me," people generally are rather well pleased. Everybody knows what a dangerous concept that is for this whole country.

What is our task in meeting this challenge of really contributing, on a sound basis, to making our areas stronger economically and aesthetically, and in every other way? I think a plan is needed. I think you must know what kind of development you want, and then you must test to determine whether you can convince the people around you that the plan is sound and acceptable.

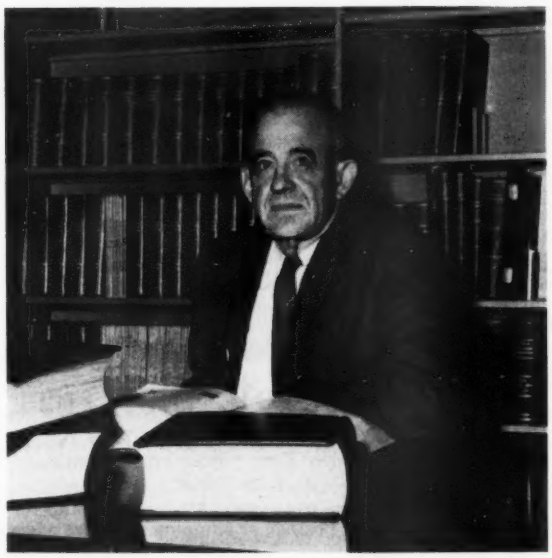
We don't have, and don't want, the power to compel people to go into the scheme that we propose. We want a plan, and we want to be able to present it as a sound one, and have it accepted and practiced as sound. If it isn't sound, we're going to lose. If we bring business into our area and build great facilities that will last 30 or 40 years with the expectation that we're going to have business through the life of that equipment, and 10 years later it fails, we have created a very great problem for ourselves and the whole community. We've displaced a lot of workmen, and we've lost the load. People participating in area development should have a real stake in it. The development must be sound, and bring forward the kind of facilities that will make for a strong and a persistingly strong economy.

I think a lot of people become too enthusiastic about size. Many people just want their community to grow, and all of us who are eager to do business and eager to make a success of our company want some growth. But it's like the man who becomes miserly and strives for an accumulation of the world's goods, forgetting the perfectly obvious principle that what we're really striving for is to be happy. We're all interested in security, and want to do things for ourselves and our families. But we don't want to destroy our life doing it, anymore than we want to destroy the pleasure of our communities in exchange for size. I'm sure there are some communities that should not be large communities, although the majority of them have an enormous feeling for growth—growth, whether it's going to be permanently beneficial or not.

I think we're going to be able to provide to a large extent the skills that will contribute very greatly to assisting people in approaching this problem in a sensible, productive way. No one else has as good an opportunity to take a justifiably big interest in this whole subject than the various public service companies. The concept of area service gives us a great advantage in that regard. The very large investment we make per dollar of sales, and the length of time that the investment must run to be paid out, directs our attention more forcibly than almost anyone else's to the long-range, sound, productive approach.

I think there are very few things that have won the respect of more people for our industry than a healthy, sincere interest in area development, particularly when it's been connected with productive results. We have the skill, the motive, the justification. There is no question that you and your successors and associates will continue to produce good results in this country. I can only hope that we can present our efforts to the public well enough to help us in the great fight we have ahead of us—to be given the privilege of continuing to do what I think has been an extremely good job.

Glenn Farmer Retires from EEI after 27 Years



GLENN FARMER, Research Librarian of EEI and general supervisor of the Institute's library, retired Nov. 30, after more than 27 years with EEI.

Mr. Farmer came to the Institute on April 10, 1933, on a "temporary basis" to organize the library files.

Mr. Farmer's expert knowledge of foreign electricity developments, government power developments, and current Federal and state legislation affecting the electric utility industry were of incalculable benefit to the Institute for more than a quarter of a century.

Edited 'Data of Interest'

In addition to his other duties, Mr. Farmer was the editor of "Data of Interest," a monthly newsletter containing items of importance to executives of the electric utility industry.

Mr. Farmer is a graduate of Bowdoin College in Maine. His wife, Marjorie, after serving several terms as a State Representative in the Connecticut Legislature, last November was elected State Senator. Mr. and Mrs. Farmer reside in Darien, Conn.

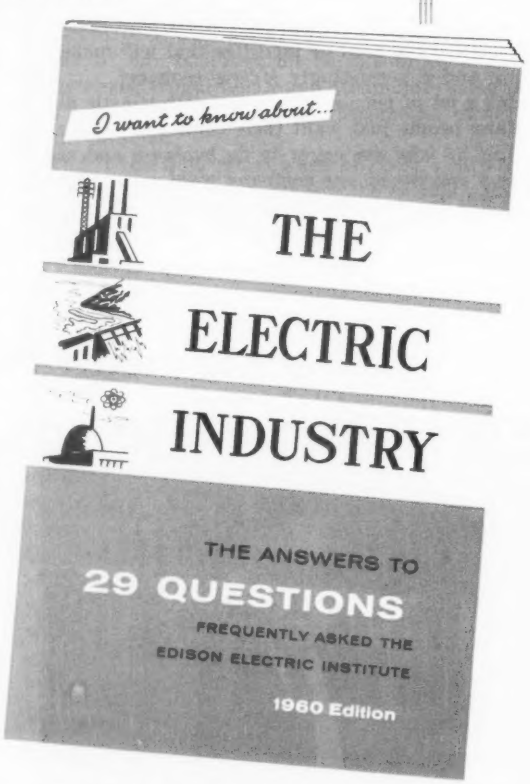
I Want to Know About
The Electric Industry...

12th Edition of Booklet Available from EEI

THE 12th annual edition of "I Want to Know About the Electric Industry" is now available from Edison Electric Institute. The 32-page booklet, printed in two colors, presents in text and tabular form the answers to 29 questions frequently asked the Institute. Included in this year's edition is a new question, "What Are the Long-Range Plans of the Electric Companies?," which presents the growth plans of the investor-owned electric companies to 1980, including predicted increases in generating capability and kilowatt-hour output, and construction expenditures which will be required to achieve this expansion over the next two decades.

Among the facts stated in the booklet are these:

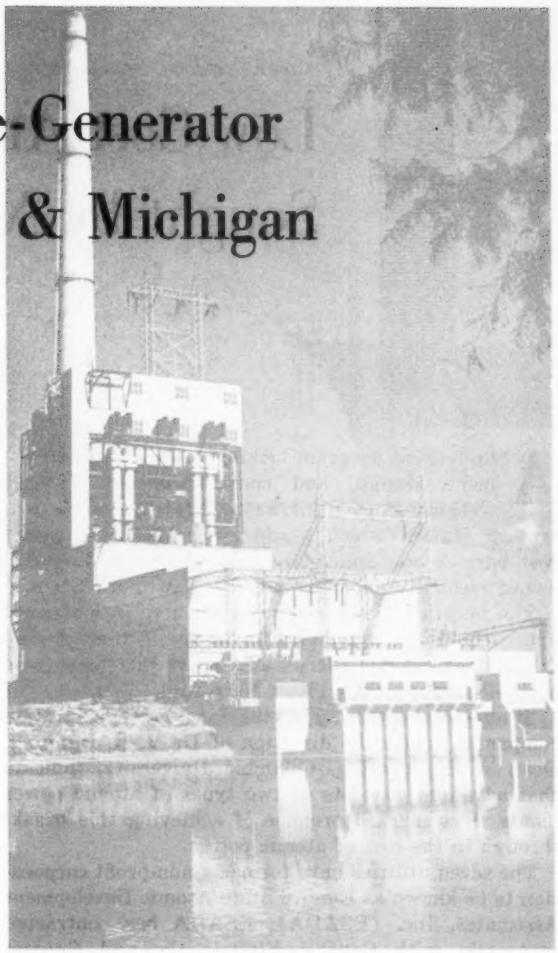
- The United States in 1959 produced 38.8 percent of the world's electricity, exceeding the combined output of the next seven countries.
- More than 47 million kw of new capacity has already been scheduled for 1960-63 and later.
- By the end of 1960 the electric industry was serving almost 59 million customers.
- Average home consumption of electricity reached a new high of 3,585 kwhr in 1959, while average price per kwhr reached a low of 2.50 cents.
- The average American worker in 1959 used 28,753 kwhr of electricity—the equivalent of 429 extra men helping each worker.
- Total taxes of investor-owned electric companies exceeded $2 billion in 1959 for the first time.



The booklet may be ordered from EDISON ELECTRIC INSTITUTE
750 Third Ave., New York 17, N. Y.

PRICES: 25 cents per copy for two to 99 copies; $13 per hundred for 100 to 999 copies; $95 per thousand for 1,000 to 9,999 copies; $87 per thousand for 10,000 or more copies. Postage or shipping costs are additional on all orders for 10 or more copies.

475,000-Kw Turbine-Generator Operated by Indiana & Michigan



THE $71.5-million Breed plant of Indiana & Michigan Electric Co. which houses a single 475,000-kw, steam turbine-generator was dedicated recently by Gov. Harold W. Handley of Indiana.

Philip Sporn, President of American Electric Power Co., and President of Indiana & Michigan Electric, said this is the largest and most efficient electric power generating unit in operation in the world. Its capacity is said to be 40 percent greater than that of the next largest generating unit.

The dedication ceremony of the Breed plant, located on the Wabash River just west of Sullivan, Ind., was witnessed by 500 representatives of business, government, the utility industry and civic organizations from Indiana and a number of other states.

Mr. Sporn said the plant was "an example of the best performance of private enterprise in power." This plant brings to more than 6.5 million kilowatts the total generating capacity of the AEP system. In the past five years 2.6 million kilowatts have been added to the system.

"The success of this program is the answer to the question: 'Can private enterprise, in a field as important as power—a field so involved with the economic welfare of any large area—be relied upon to supply all the energy necessary for the growth and development of the area to the maximum extent consistent with its physical and human resources?'" Mr. Sporn declared, "The Breed project . . . demonstrate(s) not only that this can be done, but that it has been done."

In addition to Gov. Handley and Mr. Sporn, others who were to take part in the program as speakers included: U.S. Senator R. Vance Hartke (Dem.-Ind.); U.S. Representative William G. Bray (Rep.-Ind.); Morris Nielsen, president of The Babcock & Wilcox Co., which built the world's largest boiler for the Breed plant; and W. S. Ginn, Vice President of General Electric Co., builder of the plant's turbine-generator.

The guests were taken on guided tours of the plant this morning and, among other things, they saw:

- A huge boiler, 23 stories high, weighing 7,300 tons, containing 220 miles of steam tubing, and capable of producing nearly 3-million pounds of steam an hour.
- A pair of turbine-generators, each 112 feet long, making up the single unit capable of producing 3½ billion kilowatt-hours of electric power a year—enough for a million average American homes.
- A steam condenser which borrows and then returns to the river more than 462 million gallons of water each day for cooling purposes.
- Coal-handling equipment which feeds Breed's ravenous appetite of 1.4 million tons of coal a year.
- A concrete stack rising 550 feet into the air.
- A plant into which had gone 63,000 cubic yards of concrete and 6,300 tons of structural steel.
- And the beginning spans of a 186-mile, double-circuit, 345,000-volt transmission line carrying Breed's energy into I&M's service territory.

In his talk, Mr. Sporn revealed that, while the unit had already demonstrated a capability of 480,000 kw, some minor engineering changes to be made would raise its capability to 500,000 kw. He also disclosed that, in the matter of efficiency, design calculations and expectations based on the plant's operation since July 31 indicate that it will have a heat rate of close to 8,530 Btu's per kilowatt-hour of generation. Until Breed, no plant in history had ever operated with a heat rate below 9,000 Btu per kwhr, he added.

Mr. Sporn described the plant as "the kind of plant that the Russians say they are going to build but which they have as yet not built." Then he added, "But by the time they do, if we maintain the spirit that produced Breed, we will have built better plants than the Russians will build in reproducing Breed."

Low-Cost Atomic Electricity Sought by New York Group

AN intensive program looking toward the development, design, and construction of a large (300,000-500,000 kilowatts) atomic electric generating station which would crack the atom power cost barrier was announced today by seven investor-owned electric companies serving New York State.

The program is the second major step in a planned approach by the companies to the production of electricity from atomic energy at a lower cost than from coal, oil, and gas throughout New York.

Studies conducted during the past year by the seven companies, under the direction of Dr. J. R. Dunning, Dean of Engineering, Columbia University, indicate that advanced concepts of two types of atomic power plants show marked promise of achieving this breakthrough in the cost of atomic power.

The seven utilities have formed a non-profit corporation to be known as Empire State Atomic Development Associates, Inc. (ESADA). ESADA has contracted separately with General Electric Co. and General Atomic Division of General Dynamics Corp. to conduct an initial two-pronged development program totaling more than $20 million towards which the utilities, through ESADA, will contribute more than $10 million.

General Electric will design and construct a reactor of about 15,000 thermal kilowatt capacity (5,000 electrical) at its Vallecitos Atomic Laboratory. This test facility will be operated to demonstrate technical feasibility and improved economics of nuclear superheat for ultimate application to large-scale power plants. General Electric is now doing extensive work on nuclear superheat in cooperation with the Atomic Energy Commission.

General Atomic will proceed with development work aimed at a complete high-temperature, gas-cooled reactor power plant of 300,000-500,000 kilowatts (electrical) which will produce steam suitable for use in modern high-efficiency turbines. General Atomic is particularly fitted for this work because it has conceived and is developing the 4,000-kw prototype, high-temperature, gas-cooled reactor, to be completed at Peach Bottom, Pa., in 1963.

The ESADA program was initiated by a high-level, state-wide utility company planning and study group, which was organized 15 months ago as Empire State Utilities Power Resources Associates (ESUPRA).

The directors are Earle J. Machold, President of Niagara Mohawk Power Corp.; Errol W. Doebler, Chairman of Long Island Lighting Co.; Joseph M. Bell, Jr., President, New York State Electric & Gas Corp.; Charles E. Eble, President, Consolidated Edison Co. of New York, Inc.; Robert E. Ginna, Chairman, Rochester Gas and Electric Corp.; Charles L. Hulswit, President of Orange and Rockland Utilities, Inc.; and Ernest R. Acker, Chairman, Central Hudson Gas & Electric Corp., who is also president of ESADA.

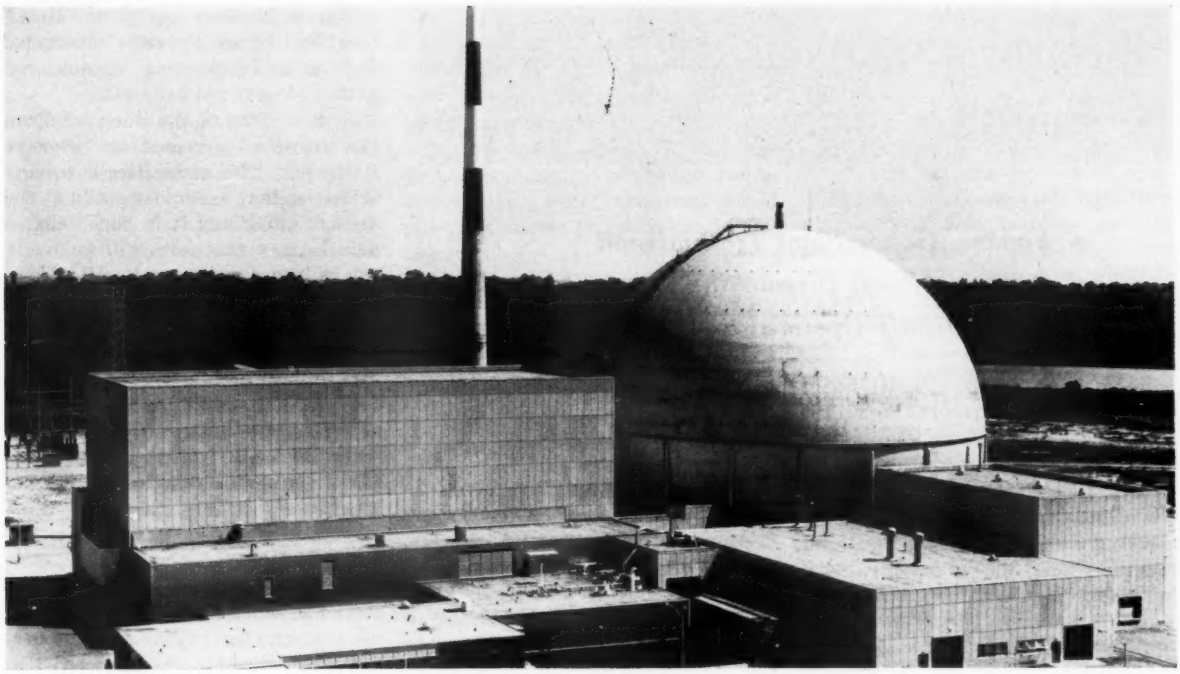
The ESADA project is in addition to an already substantial investment by New York State utility companies in other atomic projects which employ various reactor types.

Consolidated Edison is completing a $100,000,000 atomic plant at Indian Point, N. Y., which has as its nuclear component a pressurized water, uranium-thorium converter. The plant is expected to go critical late next year.

Niagara Mohawk, New York State Electric & Gas, and Rochester Gas & Electric are among the 53 member companies of High Temperature Reactor Development Associates, Inc., which are building the Peach Bottom prototype plant. The Atomic Energy Commission is financing a portion of General Dynamics' research and development costs for this plant.

The Rochester company, Long Island Lighting, and Central Hudson are members of Power Reactor Development Corp. which is building a fast breeder nuclear electric generating station at Monroe, Mich. All of the ESUPRA companies, except Orange and Rockland, are members of Atomic Power Development Associates, Inc., engaged in engineering design and research for the Monroe reactor.

Concurrent with its atomic energy activities, ESUPRA maintains a power pool committee headed by Howard Harrington, chief system electrical engineer of Niagara Mohawk, which is making studies for the long-range state-wide planning to meet future electrical needs of the state at the lowest possible cost. Generating plants and transmission facilities now planned or under construction, including the Niagara project of the State Power Authority, will provide more than adequate capacity in the state for the next several years.



Commonwealth Edison Co. recently dedicated its 180,000-kilowatt Dresden Nuclear Power Station, above, which is the largest-known atomic power plant in the world. The plant provides enough electricity for a city of 200,000 people.

Dresden Nuclear Station Dedicated

COMMONWEALTH Edison Co.'s Dresden Nuclear Power Station, the world's largest known atomic power plant, was dedicated recently.

Approximately 2,000 guests attended the formal launching of the station at the Illinois waterway site of the plant, 50 miles southwest of Chicago.

John A. McCone, Chairman of the U. S. Atomic Energy Commission; Willis Gale, Chairman of Commonwealth Edison; R. J. Cordiner, Chairman of General Electric Co.; and Gov. W. G. Stratton of Illinois were among those celebrating the completion of the nation's first fu'l-scale, privately financed nuclear power station. The 180,000-kilowatt plant produces enough electricity to serve a city of more than 200,000.

The $51-million Dresden plant was built with the cooperation of Nuclear Power Group. The station already has produced about 180 million kilowatt-hours of electricity for Commonwealth Edison customers. The plant's electrical output to date is equivalent to the average annual use of 60,000 Commonwealth Edison residential customers.

General Electric's dual-cycle boiling water reactor is the power source for Dresden station. The reactor contains about 65 tons of nuclear fuel. The initial load is expected to last three and one-half years, and will produce as much electricity as two million tons of coal.

The electricity produced by Dresden is the same as that produced by a conventional power plant. Linked to 12 other stations by the interconnected transmission facilities of the utility, the new nuclear station has increased Commonwealth Edison's net generating capability to more than 5,200,000 kw.

Dresden station went into service well ahead of its originally scheduled completion date of Dec. 8, 1960. On June 12, 1957, the start of major construction was observed in ceremonies at the site. At that time the first steel column for the station's 190-foot sphere was set in place.

Electrical System and Equipment Committee Meeting

- *Yankee Atomic Plant Transmission*
- *Radiation-Proof Dispatching Center*
- *Automatically Operated Stations*

R. G. MEYERAND
Chairman

THE Electrical System and Equipment Committee held its 82nd meeting at the Northampton Hotel, Northampton, Mass., October 16-18, with approximately 140 members and guests attending.

Papers, Reports, Discussions

The program consisted of papers, reports, and discussions under the sponsorship of F. J. Berger, Chairman of the Subcommittee on System and Equipment Troubles; K. L. Wheeler, Chairman of the Subcommittee on Equipment and Station Design; R. M. Pennypacker, Chairman of the Subcommittee on Equipment and Station Operation and Maintenance; N. C. Storck, Chairman of the Subcommittee on System Engineering and Operation; A. P. Fugill, Chairman of the System Planning Subcommittee; and V. J. Hayes, moderator of the round table discussion.

On Monday morning the closed session program of the Subcommittee on System and Equipment Troubles was presented. Various system disturbances and apparatus failures were informally discussed by the committee and guests.

On Monday afternoon Sherman Knapp, President, The Connecticut Light & Power Co., and President, EEI, addressed the committee.

Mr. Storck sponsored a paper on "The NEAR System," written by R. A. Lamley and presented by G. W. King, both of Consumers Power Co. The National Emergency Alarm Repeater System is an alarm system developed by the Midwest Research Institute for the Office of Civil and Defense Mobilization, a field trial of which was conducted on the lines of Consumers Power. The 240-cycle signal is generated in special transformers by introducing direct current in the windings. The signal is transmitted over the power lines and is picked up by a special receiver in the customer's premises. This tuned frequency device is contained in a small box which plugs into an ordinary convenience outlet. When energized it gives an audible signal.

Mr. Fugill sponsored a report on "Transmission Planning Practices," by J. J. Tesar of The Cleveland Electric Illuminating Co. The latest trends and practices of the utilities in this field were discussed before the committee.

Mr. Wheeler presented a report on the Activities of the Transformer Noise Joint Committee. The joint committee has recommended transformer noise standards to be submitted to ASA, and these recommendations will be sent to each member of the Electrical System and Equipment Committee for letter ballot approval.

Mr. Wheeler and Mr. Asbury each gave a report on "Negative Sequence Capability ($I_2^2t = 30$) of Generators." With the advent of large, conductor-cooled generators, which permit a reduction in rotor sizes, there is a tendency for this value of 30 to be reduced since it is a function of iron mass. Some of the problems involved with lower values of $I_2^2t = 30$ include greater surface heating in the generator rotor, higher values of unbalanced current, and lack of proper relay coordination.

Harris Barber's report on "Metalclad Switchgear Troubles" described the latest difficulties encountered with oil-less metalclad units.

O. B. Benson of the Boston Edison Co. presented a report on "Storage Batteries." This committee has many activities that are under study at the present time, and it is hoped that a new battery standard will be ready for balloting very soon in ASA Committee C-40.

Three brief reports of new developments were presented under the sponsorship of Mr. Hayes.

H. A. McLaughlin of Central Hudson Gas & Electric Co. discussed "New Motor-Driven Rotating Rectifier Exciter for 125-Mw Danskammer #3 Unit." In this system an exciter is mounted on the generator rotor shaft and silicon rectifiers, also mounted on the shaft, rectify the exciter armature output instead of the usual commutator. This rectified output is fed directly along the shaft to the main generator field, eliminating the collector rings.

R. E. Thornton of the Oklahoma Gas and Electric Co. spoke on "A New Combination Gas and Conventional Turbine" for the OG&E system. The gas turbine exhaust was used as the combustion air of the conventional furnace.

E. F. DeTurk of the Long Island Lighting Co. reported on "69-Kv Aerial Cable." This installation is a three-conductor, 800-mcm cable, insulated to 69-kv, pipe-type cable standards enclosed in an aluminum sheath, and to operate at a nominal gas pressure of 200 lbs./sq. in.

A round table discussion of subjects of general interest which had been submitted previously by members was held in closed session for the rest of Monday afternoon. Mr. Hayes was the moderator for this discussion period.

Yankee Transmission

On Tuesday morning, under jurisdiction of the Subcommittee on System Engineering and Operation, Mr. Storck, through Mr. Stites, sponsored a paper on "Yankee Transmission," by H. R. Stewart of the New England Electric System. The Yankee Atomic Plant is a 134-mw unit, located at Rowe, Mass., and owned by

11 New England stockholder utility companies. The electricity produced by the plant is to be transmitted to the purchasers over the existing transmission network with some new facilities to be added. After subtraction of aggregate incremental transmission losses from Yankee power output, each Yankee stockholder receives a share of the remaining power in direct proportion to his stockholder interest, regardless of how remotely located he may be with respect to the generating plant. Construction expenses to a stockholder to move Yankee power will be reimbursed by the other stockholders in proportion to their stockholder interest. Since New England is one of the high fuel cost areas of the country, it is felt the Yankee plant joint venture is worthwhile to gain experience on a share-the-risk basis in the building and operation of an atomic-fired power plant.

H. A. McLaughlin sponsored a paper on "Power System Communications Engineering—Getting Your Money's Worth," prepared by J. G. McKinley of West Penn Power Co. The demands for more and better communications facilities have brought some factors into focus which bear directly on the responsibilities of communications engineers. Transmission reliability requirements are very high, system operation problems have changed, and new designs and developments have revised company policies. The opportunity for communications engineers to make significant contributions to the betterment of system operation and management is a very real one. The impact of large power pool interconnections will be felt by all utility companies, and the economics and reliability of the communications equipment will pose challenging problems which will have to be solved by the communications engineers.

Radiation-Proof Center

K. N. Reardon sponsored a paper on "Radiation-Proof Dispatching Center" prepared by W. H. Wells of The Connecticut Light & Power Co. This dispatching center at Southington, Conn., is essentially located at the major switching station hub of The Connecticut Light and Power Co. In view of the importance of the load dispatching center in normal, as well as emergency, conditions—and taking into consideration that a new structure was involved—it was concluded that an underground radioactive fallout-proof structure would provide the maximum practical solution.

The floor of the main building is 16 feet underground and the walls and ceiling are made of 12-inch heavily reinforced concrete. A steel deck is used to support the ceiling. The building is entered through a small superstructure set upon the building proper. This superstructure is designed to be expendable and would be destroyed by a strong shock wave. There is an 800-lb, radiation-resistant door made of one-quarter-inch steel plates and concrete at the rear and another at the front entrance to the dispatching room on the lower level. Ninety percent of the air is recirculated through an electrostatic precipitator and the 10 percent makeup air from the outside is filtered and treated before being mixed with the recirculated air. Underground well water and emergency generators are available for use during an incident.

The dispatching room measures 40 feet by 54 feet and contains a curved aluminum diagram board, telephone desks, meter panels and generation computer which drives the automatic load control equipment.

The dispatching center has been in operation since Feb. 8, 1960, and the results have lived up to all expectations. By using high-level illumination, controlled air conditioning, and warm colors for all rooms, the entire building provides very pleasing working conditions.

R. M. Pennypacker, through J. W. Asmann, sponsored a paper on "Dump Load Testing of Steam Turbo-Generators," by E. D. Powell of the Duke Power Co. Duke Power has long believed that all pieces of equipment purchased should be tested under maximum guaranteed conditions, and that there should be sufficient spinning reserve, above load demand, to replace the largest single unit in service. For three dump tests made at 90, 180, and 275 mw, the time required to dump, for intercept valves to reopen, to return to synchronism, and to reparallel, averaged from four to seven minutes. The tests proved that under planned conditions maximum load on the unit could be dumped with boiler pressure being held below safety value operating points. These tests also furnished invaluable training for the system operators which they were able to use at a later date when an unplanned loss of 275 mw occurred.

Automatic Stations

Mr. Wheeler sponsored two design papers on automatic control of power plants.

A. B. Christie of the Southern California Edison Co. presented a paper on "Design of Automatic Supervisory Control System for Huntington Beach Steam Station." Some of the benefits expected from the use of digital computer control are increased safety to personnel and equipment, increased service availability, better utilization of manpower, and general economic considerations. The computer-controlled supervisory system is a welcome tool for the power station operator. The computer does not relieve the operator of his responsibility, but it makes it possible for him to do a better job. It is capable of continually monitoring all critical points within seconds and never gets distracted. In addition, it is capable of making practically instantaneous calculations of the operating performance of the boiler and turbine for optimizing the control, and furnishing heat rate data which will be of great value to the system load dispatchers and the plant maintenance men.

The control console is arranged for one-man operation and all controls are manipulated as per supervision during the run period. It is expected that start-up and shutdown operations will be under automatic computer control, which can be carried out with less thermal stress than with manual control.

W. A. Summers of Ebasco Services Inc. presented a paper entitled "Automation of Little Gypsy." Control of the plant will be completely automatic with the primary controlling instruments located locally. They will transmit signals to the indica-

tors on the main boiler-turbine-generator board.

The plant, by means of a computer, will automatically, safely, and efficiently start up from cold or hot start, run, and shutdown the unit for a short duration, extended shutdown, or emergency shutdown. During the run period, the computer will automatically adjust load as required by the system dispatcher, starting and stopping necessary equipment, take proper action to optimize operating efficiency, and to an extent over-ride automatic sub-loops which might not perform properly where safety is concerned.

The meeting was concluded with a series of ASA and Joint Committee reports that proved to be very informative to all the members.

Transmission & Distribution Committee Meeting

- *Detroit Edison's Underground Practices*
- *Union Electric's Standards Program*
- *Line Crew Performance Measurement*

H. E. CODY
Chairman

THE fall meeting of the Transmission and Distribution Committee was held Oct. 6-7 at the Sheraton-Jefferson Hotel, St. Louis, Mo. W. M. Penney, immediate past chairman of the committee, welcomed the 180 members and guests to St. Louis.

Underground

The opening session was sponsored by J. F. Hennessy, Chairman of the Underground Subcommittee.

H. L. Williams gave details of the June 29 underground service interruption in downtown Cleveland. Trouble originating from a fault on a d-c cable involved four d-c feeders, four 11-kv feeders for the a-c network and two 4-kv radial system feeders.

L. H. Fink summarized results of the recently completed research project on soil thermal resistivity. These emphasize that considerable savings can be realized by a careful survey of the thermal resistivity along routes of proposed lines, by designing the trench to fit the conditions, by using suitable backfill, and finally by insuring adequate compaction of the backfill.

B. W. Hafeli described current Detroit Edison Co. practices for underground residential and trailer park distribution systems. These consist of an open, single-phase primary loop in and out of pad-mounted transformers. Primary and secondary cables are laid in direct-buried, heavy-wall, fiber conduit in a trench jointly occupied by telephone distribution cable.

A major feature of the session was a discussion of underground cable testing practices with particular emphasis on the use of periodic, routine, proof testing as a means of reducing service failures. T. C. Duncan reported that a special proof testing program undertaken on part of the Consolidated Edison Co. of New York, Inc., system has been inconclusive to date since the slight reduction in the service failure rate is too small to be significant. D. F. Tulloch stated that the Boston Edison Co. has followed a routine, proof testing program for over 30 years and has established a definite relationship between the extent of testing and the service failure rate. A. Zanona reported that the Commonwealth Edison Co. now is conducting a special proof testing investigation on part of the system, but that preliminary results show an increase in service failures.

Standards and Specifications

H. G. Hally, Chairman of the Standards and Specifications Subcommittee, called on task force chairmen for progress reports on their activities.

H. MacVaugh advised that the proof-testing program to confirm proposed methods of providing for interchangeability of aluminum conductor compression connector tools and fittings is progressing satisfactorily and on schedule.

H. C. Bingham announced the issue of EEI Publication 60-52 "Application Guide for Automatic Oil Circuit Reclosers."

A. T. Green announced publication of a revision of TDJ-133, "EEI-NEMA Standards for Voltage Classification of Luminaires Used in Street and Highway Lighting." Work on the proposed supplement to EEI-NEMA standards for street lighting poles is almost completed and work on a revision of the standards for filament lamps and new standards for light sensitive controls is continuing.

W. H. Johnson reported that the Timber Products Task Force held a two-day meeting devoted to discussion of groundline treatment of poles. Further investigation has been initiated on several aspects where information or experience is lacking.

C. E. Topping announced that TD-20, "Specifications for Insulated Clevises," and a revised TD-15, "Specifications for Pole Steps," have been released for printing. The EEI-NEMA Joint Committee on Pole Line Hardware is continuing work on proposed new standards for secondary extension brackets and aerial cable hangers as well as revisions of several existing specifications.

F. E. Sanford reported that the EEI-NEMA Joint Committee on Connectors for Aluminum Conductors presently is working on mechanical requirements to supplement electrical

tests covered in the recently issued "Tentative Specifications for Connectors for Aluminum Conductors."

W. J. Bolton reported that members' comments indicate that four variations of #4 aluminum overhead service cable will be needed to cover requirements.

In describing the Union Electric Co. standards program, R. G. Steiner stressed the value of using a standards committee, representing all interested departments and divisions, as opposed to standardizing by staff directive. He also emphasized the need for a continuing program.

Safety

The first day concluded with a session sponsored by H. W. Dannettell, Jr., Chairman of the Safety Subcommittee.

H. E. Hatfield noted that the electric utility industry achieved an accident frequency rate of 6.01 in 1959, which is somewhat better than the average for all industries. He also described some of the outstanding safety records of individual power companies and the efforts of the EEI Accident Prevention Committee to provide for further improvement. He then gave details of the Georgia Power Co. procedure for working lines in the 15-kv range with rubber gloves and insulated platforms.

J. D. Hoag discussed the revitalization of the Union Electric Co. safety program, which has produced outstanding results in the last three years, particularly in the transmission and distribution department. The program has many aspects but emphasis is on a coordinated effort by all levels of supervision to increase safety awareness in each individual.

Engineering Education

D. A. Fisher, Dean of the Engineering School, Washington University, discussed current trends and controversies in engineering education. Constant pressure by those outside the profession has induced some schools to establish a five-year course requiring three years devoted entirely to liberal arts followed by a final two years of engineering. The worst aspect of this type program is that many potential engineers are lured away at the end of the first three years by the prospect of a B.A. degree in just one more year. Within engineering Mr. Fisher foresees a trend toward more science and less practice with considerably more freedom to select subjects of most importance in a specific field.

General Engineering

H. R. McNutt, Chairman of the General Engineering Subcommittee, sponsored a session covering a variety of subjects.

H. L. Davis, Jr., reviewed Federal Communications Commission activities affecting power company use of radio. These include the use of tone signalling on mobile radio channels and new technical standards for microwave systems.

W. D. Campbell described a new computer program developed by the Central Power and Light Co. which converts the tabular output of the IBM 704 load flow program to diagram form on magnetic tape for off-line printing.

J. Umstead told how the West Penn Power Co. uses H-frame moment diagrams to determine when the loss of strength resulting from pileated woodpecker damage requires pole replacement. These show that H-frame structures can withstand considerable damage except in critical areas of stress concentration.

A paper by F. F. Gray and A. W. Gebhardt described economic sizing of primary distribution feeders on the Union Electric Co. system. The 1960 peak primary loss would have been reduced approximately 5300 kw if all primary conductors previously had been installed in accordance with economic sizing.

H. R. McNutt presented a movie showing 25-kv oil circuit recloser inspection and maintenance as practiced by the West Penn Power Co.

Overhead

The final session was sponsored by J. Lummis, Chairman of the Overhead Subcommittee.

J. J. Misic described overhead line crew work measurement methods being employed by The Cleveland Electric Illuminating Co. Earlier analyses of individual crew member activities resulted in realignments of crew size and composition which has produced savings of about 15 percent. Present efforts are directed toward detailed, all-day, activity studies which will pinpoint non-productive time elements, such as travel, garage time, and job delays, which are subject to some degree of control.

C. E. Monfort, Jr., gave details of overhead line crew performance measurement used by the Union Electric Co. The data obtained has many uses. For example, they indicate that small crews can be used economically on only a limited scale, principally because about 85 percent of the total man-hours are used on jobs requiring more than 50 man-hours.

R. Hicock reported good progress on the tree growth control research project being conducted by Battelle Memorial Institute. One compound has shown sufficient promise to warrant more extensive field tests.

J. Lummis presented a movie showing overhead system work practices of the Southern California Edison Co. The company has purchased 80 new, highly mechanized line trucks designed for four-man crews, and the movie showed comparisons of operations such as pole and transformer replacements with the new and old equipment.

A Complete List of EEI
Publications Is Available from:
Edison Electric Institute
750 Third Avenue
New York 17, N. Y.

Meter & Service Committee Meeting

- *Report on Revision of ASA C-12*
- *Selective Meter Testing Plan*
- *Automatic Meter Reading Report*

C. P. STAHL
Chairman

APPROXIMATELY 75 members, correspondents, and guests convened at the Westchester Country Club in Rye, N. Y. on Sept. 19-21, for the joint meeting of the AEIC and EEI Meter and Service Committees. The meeting was devoted to the discussion of new developments in meters and metering equipment; development and review of joint industry standards concerning metering; presentation of subcommittee reports; and round table discussions on the engineering, economic, and operation aspects of revenue metering.

At the Monday morning session manufacturers described and displayed new types of meters, metering instrument transformers, and metering accessory equipment. On Monday afternoon the four subcommittees met independently to discuss their various subjects and formulate their reports. E. B. Hicks, Chairman of Subcommittee I, Services, moderated his session. E. F. Blair in his new capacity as Chairman, conducted the meeting of Subcommittee II, Metering. The work of Subcommittee III, Performance, was directed by its new Chairman, G. F. Austin. The meeting of Subcommittee IV, Management, was moderated by the Chairman, A. D. Irion.

At a joint luncheon of the committees on Monday, J. F. Fairman, Senior Vice President of Consolidated Edison Co. of N. Y., Inc., welcomed the committees to New York. Mr. Fairman said he was the first chairman of the Meter and Service Subcommittee of the Electrical Equipment Committee when EEI was organized in 1933. This subcommittee was the predecessor of the EEI Meter and Service Committee. He congratulated the group, both manufacturers and users, for the excellent progress made in the art of electric metering, and especially in their ability to standardize and not restrain progress at the same time.

C. V. Morey presented a report on the status of revision of ASA C-12, Code for Electricity Meters. He said work was progressing quite satisfactorily, and the various interested groups were very cooperative in their efforts. He described in some detail the proposed new format for the next edition of ASA C-12. He pointed out that the Code for Electricity Meters is a reference manual stating acceptable performance levels for new types of watthour meters, demand meters, and instrument transformers used for revenue metering. The code also includes information and guidance on related subjects, such as acceptable installation and test methods, which is of value to all persons concerned with the art of electric metering. He stressed that ASA C-12 is not a purchase specification.

J. A. Morris distributed a tabulation showing electric utility companies who had informed him they either had adopted or were studying methods of selective meter testing. He asked those companies not listed to furnish him with the necessary information.

As a result of a motion made by E. F. Blair, it was agreed that the words "random," "statistical," and "sampling" would be eliminated from future correspondence pertaining to the various methods of selective testing and maintenance of electric meters. It was pointed out that the statistical method of obtaining samples was merely one phase of a good selective testing plan.

F. L. J. Hammerle asked the cooperation of the committee in reviewing the section of the book *Public Utility Commission Rules and Regulations for Electric Meters*, which pertained to their service area. He said the book was out of print, and additional copies were not available, but, when revised, it would be reprinted.

J. A. Morris described the salient features of a selective meter testing plan submitted by the various utilities in Michigan to the State Public Utility Commission. He also presented a resume of a study conducted by C. L. Lucal and the Ohio Power Co. on the merits of various selective testing plans.

W. J. Piper described the results of a survey he had conducted pertaining to probable future trends in certain areas of the meter industry. It appeared there were several possibilities of changes in the distant future, but none within a short time which could not easily be accepted.

J. S. Lineback said there was considerable interest in automatic meter reading schemes, but that none of the systems proposed to date was economically competitive with established routine manual reading methods. He said he personally thought the industry should sponsor some pilot installations in order to gain experience and speed development work.

The revision of the *Electrical Metermen's Handbook* is progressing satisfactorily according to G. A. Palmer, the editor-in-chief. At this time it is impossible to determine when the seventh edition will be offered for sale.

The configuration of some of the new molded potential transformers was discussed, with special attention being paid to the safety aspects of the situation. Some of these potential transformers have identical terminals and spacing for both the primary and secondary sides, and some carry no permanent marking. During the meeting a task force discussed the

(Continued on page 407)

People in Power

W. R. SNYDER, President and chief executive officer of Manila Electric Co., Manila, Philippine Islands, has been elected President of Metropolitan Edison Co., succeeding the late O. Titus.

A former employee of Metropolitan Edison, Mr. Snyder was graduated from Pennsylvania State University as an electrical engineer in 1923. He joined General Electric Co. soon after as a cadet engineer. In 1924 he was employed by Metropolitan Edison as an electrical engineer in its distribution and transmission department, and played an important part in the early planning for the development of the company's electric system.

In 1930 he was sent to Manila Electric on special assignment to rebuild its distribution system in the main business district of Manila, and to make other important economic and engineering studies of the Manila system. Manila Electric and Metropolitan Edison are subsidiaries of General Public Utilities Corp.

He was appointed assistant manager of the electrical department for the Manila company in 1936, responsible for electric power production, transmission, distribution, substations, and all commercial activities. It was during this assignment that he was interned by the Japanese when war broke. Mr. Snyder spent nearly four years in a Japanese prison camp.

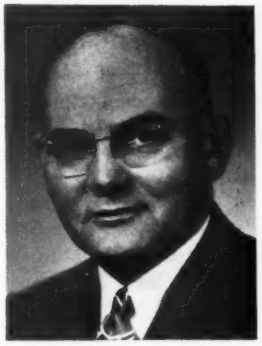
Upon his release from the prison camp in midsummer of 1945, he returned to the United States to become affiliated with Gilbert Associates, Inc., as an electrical engineer, devoting most of his time to war rehabilitation work for Manila Electric.

Returning to the Philippines in 1946, Mr. Snyder was appointed vice president in 1949 and president of Manila Electric in 1952.

C. B. MCMANUS, Chairman of the Board of The Southern Co. and former President of the Georgia Power Co., retired from active service Dec. 1. He will continue to serve as a director.

Mr. McManus has spent his entire business life of 43 years in the electric utility industry, and enjoys a position of national leadership. At the beginning of 1951, Mr. McManus was chosen to head the Defense Electric Power Administration of the Department of the Interior. He has served as director and committee chairman of EEI, and is a former president of the Southeastern Electric Exchange.

W. R. SNYDER



C. B. MCMANUS

He is a director of the First National Bank of Atlanta, and of Atlantic Steel Co., as well as The Southern Co. and Georgia Power Co.

Following his graduation from Auburn University. Mr. McManus joined Alabama Power Co. in 1917. He served as a second lieutenant in the U. S. Army Corps of Engineers during World War I. He rejoined Alabama Power after the war, and remained with that company until 1927, when he became assistant operating manager of Georgia Power.

In 1945, Mr. McManus was named assistant to the president of Georgia Power. He became vice president and director of operations in 1947, and in November of that year was elected president.

In 1950, Mr. McManus was elected president of The Southern Co. and in January, 1957, was named as its vice chairman. He was elected chairman of the board in October, 1957.

J. F. CRIST, Vice President of the Southern Co., will become Executive Vice President of The Southern Co. on Jan. 2.

Succeeding him in charge of Southern's Birmingham office will be T. H. VADEN, who has served as a Vice President of the company since 1952.

Mr. Crist is also President of Southern Electric Generating Co., which is now completing construction of a million-kilowatt steam plant on the Coosa River. He will be succeeded in the generating company post by A. W. VOGTLE, JR., Birmingham attorney. A. E. BURNETT is vice president and operating manager of the generating company.

Mr. Crist is a graduate of Virginia Military Institute and Massachusetts Institute of Technology. He started in the electric power business with Alabama Power at Gadsden in 1926, and two years later went to Charleston, S. C., with South Carolina Power Co., becoming a vice president in 1941. He was president of Gulf Power Co. from 1948 to 1956. He became president of Southern Electric Generating in 1957.

The Southern Co. is the parent organization of Alabama Power Co., Georgia Power Co., Gulf Power Co., Mississippi Power Co., Southern Electric Generating Co., and Southern Services, Inc.

Carolina Power & Light Co. has elected five new officers.

The board elected A. J. SKAALE, H. G. ISLEY, D. E. STEWART, E. N. POPE and SHEARON HARRIS as Vice Presidents.

Mr. Skaale is a graduate of the University of California. After eight years with a West Coast utility, he came to CP&L in 1930.

Mr. Isley is a Duke graduate. He joined the utility as a salesman in

1919, and progressed steadily—heading Raleigh sales and all appliances sales in 1926, all residential and commercial sales in 1934, and general sales in 1940. He is actively identified with Boy Scout and Lions Club work, the Edison Electric Institute and the Southeastern Electric Exchange.

Mr. Stewart is a graduate of North Carolina State College. After two years with Westinghouse Electric Corp., he joined CP&L in 1925, serving as an engineer, power salesman and division superintendent.

Mr. Pope attended Wake Forest College and Harvard University. He has been associated with CP&L since 1923, having served as salesman, residential sales manager and advertising manager.

Mr. Harris holds A.B. and LL.B. degrees from Wake Forest College. He is a past vice president of the North Carolina Bar Association, in which he helped make studies aimed at improved legal procedure and court administration.

G. V. WILLIAMSON, Vice President, Production and Distribution, Union Electric Co., has been named Vice President-Operations Executive of the company. He has been with the Union Electric since 1922.

In his new position, Mr. Williamson will serve in a staff capacity to the executive vice president of operations, and will be responsible for operations in his absence. A mechanical engineering graduate of Washington University, he is a past chairman of the St. Louis Section of Mechanical Engineers, and has also been active in several national engineering groups. He is currently vice chairman of the St. Louis Section of the Missouri Society of Professional Engineers. He is also a past vice president of the Air Pollution Control Association of America, and has served as chairman of both the Air Pollution Controls Committee of the American Society of Mechanical Engineers, and of the Air Pollution Subcommittee of EEI.

W. J. STEWART, Assistant Manager of Ohio Power Co.'s Southern division, has been named Vice President and General Manager of Wheeling Electric Co., succeding R. R. JEWELL, retired. Mr. Stewart started with Ohio Power as a meter tester in 1925. He rose through the positions of chief radio engineer, district manager, division superintendent, executive assistant to the vice president and general manager, and finally assistant manager of the company's Southern division. Both Ohio Power and Wheeling Electric are members of the American Electric Power System.

W. S. COWART, JR., has been elected Vice President of Atlantic City Electric Co. Mr. Cowart has been engaged in marketing and engineering studies since he joined the utility last September. Previously he was director of National Aviation Facilities Experimental Center.

He received a B. S. degree in electrical engineering in 1940, and a master's degree in physics at Ohio State University. It was at Ohio State that Cowart discovered a new isotope which was given the name Selenium 73.

He entered the Air Force in 1941, and distinguished himself as director of operations of the first thermonuclear device test and director of operations of the first H-bomb test.

C. C. WINE, District Manager of Central Power & Light Co., has been elected Vice President of the company. He will supervise industrial development and sales of the utility.

Mr. Wine has more than 32 years of service with CP&L. He was named local manager in Laredo, Texas, in 1942, and has served as district manager for that area since 1948. He joined the company as a student engineer in 1927, and later served as chief clerk in the company's Laredo and Corpus Christi districts. He is a registered professional engineer in Texas.

Meter and Service Committee Meeting

(Continued from page 404)

problem with various manufacturers and were assured the situation would be remedied.

G. M. B. Robertson reported that MSJ-10, Standards for Watthour Meters, was complete and ready for publication. He pointed out that MSJ-10 was a good industry purchase specification.

E. L. Keller and E. F. Blair moderated a discussion on desirable terminology for demand contact devices. It was agreed the word "pulse" was preferable to "contact" when discussing the pulse generator or initiating device in the demand chain. It was further agreed that the proper terminology would be determined, and after agreement had been reached within the committee, an effort would be made to bring all the industry authorities into agreement.

W. H. Farrington said he had explored the possibility of designing a hermetically sealed meter with the various manufacturers. They agreed to investigate, but questioned the economics at the present state of development.

Other subject chairmen reported on the status of their studies under the guidance of their subcommittee chairmen.

Valuable discussion was held on questions submitted by the committee members on problems of meter department management and operations. This question period continues to be one of the most valuable parts of our meetings.

New subjects assigned for study included: polyphase meter performance, meter control and accountability practices, effect on meter calibration of magnetic fields, intermediate demand devices, and maintenance of photoelectric street lighting controls.

The next meeting will be held March 12-15, 1961, at the Netherlands Hilton Hotel, Cincinnati, Ohio.

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